

# SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Shefali Patel Examiner #: 79747 Date: 5/4/04  
 Art Unit: 2621 Phone Number 306-4182 Serial Number: 09/681611  
 Mail Box and Bldg/Room Location: CPI-4A07 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

\*\*\*\*\*

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Method & apparatus to automatically determine tissue Cancellation

Inventors (please provide full names): Parameters in x-ray dual energy imaging

Gopal Avinash; John Sabol; Francois Nicolas

Earliest Priority Filing Date: 5/8/01

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search for claim 1, 21, 26, 29.

Especially, computing a characteristic mask using low energy level image.

Note that characteristic mask is obtained using gradient mask and localization mask.

Thank you.

Shefali Patel

5-4/04

## STAFF USE ONLY

Searcher: Vinod Kalakuntla

Searcher Phone #: 703 306 0254

Searcher Location: PK2 3003

Date Searcher Picked Up: 05/04/06 6:20pm

Date Completed: 05/05/04 2:50pm

Searcher Prep & Review Time: \_\_\_\_\_

Clerical Prep Time: \_\_\_\_\_

Online Time: \_\_\_\_\_

## Type of Search

NA Sequence (#) \_\_\_\_\_

AA Sequence (#) \_\_\_\_\_

Structure (#) \_\_\_\_\_

Bibliographic ☒

Litigation ☐

Fulltext ☒

Patent Family ☐

Other ☐

## Vendors and cost where applicable

STN \_\_\_\_\_

Dialog \_\_\_\_\_

Questel/Orbit \_\_\_\_\_

Dr.Link \_\_\_\_\_

Lexis/Nexis \_\_\_\_\_

Sequence Systems \_\_\_\_\_

WWW/Internet \_\_\_\_\_

Other (specify) \_\_\_\_\_



# STIC Search Report

## EIC 2600

STIC Database Tracking Number: 121073

TO: Shefali Patel  
Location: PK1 – 4A07  
Art Unit : 2621  
Wednesday, May 05, 2004

Case Serial Number: 09/681611

From: Vamshi Kalakuntla  
Location: EIC 2600  
PK2-3C03  
Phone: 306-0254

Vamshi.kalakuntla@uspto.gov

### Search Notes

Dear Shefali Patel;

Attached please find the results of your search request 09/681611.

I used the search strategy we agreed upon during the reference interview.

I searched the standard Dialog files, IBM TDBs, IEEE, DTIC STINET, Wayback machine, and the internet.

If you would like a re-focus please let me know.

Please feel free to contact me if you have questions or concerns. Thank you and have a great day.

*Please take a moment and fill out the attached feedback form. Thank you.*



File 344:Chinese Patents Abs Aug 1985-2004/Mar  
(c) 2004 European Patent Office  
File 347:JAPIO Nov 1976-2003/Dec(Updated 040402)  
(c) 2004 JPO & JAPIO  
File 348:EUROPEAN PATENTS 1978-2004/Apr W04  
(c) 2004 European Patent Office  
File 349:PCT FULLTEXT 1979-2002/UB=20040415,UT=20040408  
(c) 2004 WIPO/Univentio  
File 350:Derwent WPIX 1963-2004/UD,UM &UP=200427  
(c) 2004 Thomson Derwent

Set	Items	Description
S1	9584	AU=(AVINASH, G? OR AVINASH G? OR SABOL, J? OR SABOL J? OR - NICOLAS, F? OR NICOLAS F?) OR CO=(GE OR GENERAL()ELECTRIC)
S2	855	DUAL()ENERGY
S3	207	S2(10N)(IMAGE? OR IMAGING OR PICTURE? ? OR GRAPHIC? ? OR P- HOTOGRAPH?)
S4	18	S1 AND S3
S5	18	IDPAT (sorted in duplicate/non-duplicate order)
S6	15	IDPAT (primary/non-duplicate records only)
S7	11	S1 AND IC=G06K-009/00
S8	11	IDPAT (sorted in duplicate/non-duplicate order)
S9	11	IDPAT (primary/non-duplicate records only)
S10	9	S9 NOT S5
S11	1	S10 AND S2

6/3,K/1 (Item 1 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
(c) 2004 Thomson Derwent. All rts. reserv.

016043077 \*\*Image available\*\*  
WPI Acc No: 2004-200928/200419  
Related WPI Acc No: 2004-097154  
XRAM Acc No: C04-079421  
XRPX Acc No: N04-159524

Computer aided dual energy image -processing method for identifying  
e.g. bone fractures, by extracting a set of feature measures from a  
region of interest within an image from a dual energy image set  
and reporting on the region of interest

Patent Assignee: GE MEDICAL SYSTEMS GLOBAL TECHNOLOGY CO (GENE ); AVINASH  
G B (AVIN-I); JABRI K N (JABR-I); RADER A E (RADE-I); SABOL J M (SABO-I);  
THOMAS C H (THOM-I); UPPALURI R (UPPA-I)

Inventor: AVINASH G B ; JABRI K N; RADER A E; SABOL J M ; THOMAS C H;  
UPPALURI R

Number of Countries: 004 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20030215119	A1	20031120	US 200263819	A	20020515	200419 B
DE 10321722	A1	20031218	DE 1021722	A	20030514	200419
FR 2839797	A1	20031121	FR 20035690	A	20030512	200419
JP 2004000609	A	20040108	JP 2003135221	A	20030514	200419

Priority Applications (No Type Date): US 200263819 A 20020515

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20030215119	A1		21	G06K-009/34	
DE 10321722	A1			G06F-007/40	
FR 2839797	A1			G06F-019/00	
JP 2004000609	A		19	A61B-006/00	

Computer aided dual energy image -processing method for identifying  
e.g. bone fractures, by extracting a set of feature measures from a  
region of interest within an image from a dual energy image set  
and reporting on the region of interest

Inventor: AVINASH G B ...

... SABOL J M

Abstract (Basic):

... A data source comprising a dual or multiple energy image set, is  
employed and a region of interest is defined within an image from the  
dual energy image set. A set of feature measures is extracted  
from the region of interest and is reported on the region of interest.  
... 1) computer aided dual energy images processing system...

6/3,K/2 (Item 2 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
(c) 2004 Thomson Derwent. All rts. reserv.

015939313 \*\*Image available\*\*  
WPI Acc No: 2004-097154/200410  
Related WPI Acc No: 2004-200928  
XRPX Acc No: N04-077347

Computer aided X-ray image processing method for bone fracture diagnosis,

involves extracting feature measures from region of interest defined within particular image of dual or multiple energy image set  
Patent Assignee: AVINASH G B (AVIN-I); JABRI K N (JABR-I); RADER A E (RADE-I); SABOL J M (SABO-I); THOMAS C H (THOM-I); UPPALURI R (UPPA-I)  
Inventor: AVINASH G B ; JABRI K N; RADER A E; SABOL J M ; THOMAS C H; UPPALURI R

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20030215120	A1	20031120	US 200263819	A	20020515	200410 B
			US 200265854	A	20021126	

Priority Applications (No Type Date): US 200265854 A 20021126; US 200263819 A 20020515

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20030215120	A1	31	G06K-009/00	CIP of application	US 200263819

Inventor: AVINASH G B ...

... SABOL J M

Abstract (Basic):

... 1) system for computer aided processing of dual energy images ;  
(

6/3,K/3 (Item 3 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
(c) 2004 Thomson Derwent. All rts. reserv.

015836006 \*\*Image available\*\*  
WPI Acc No: 2003-898210/200382  
XRPX Acc No: N03-716833

Dual energy images processing method, involves obtaining images generated at their energy levels and display processing processed soft-tissue image and bone images

Patent Assignee: AVINASH G B (AVIN-I); JABRI K N (JABR-I); NICOLAS F S (NICO-I); RADER A E (RADE-I); SABOL J M (SABO-I); UPPALURI R (UPPA-I)  
Inventor: AVINASH G B ; JABRI K N; NICOLAS F S ; RADER A E; SABOL J M ; UPPALURI R

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20030169848	A1	20030911	US 2002683990	A	20020308	200382 B

Priority Applications (No Type Date): US 2002683990 A 20020308

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20030169848	A1	13	H05G-001/64		

Dual energy images processing method, involves obtaining images generated at their energy levels and display processing processed soft-tissue image and bone images

Inventor: AVINASH G B ...

... NICOLAS F S ...

... SABOL J M

Abstract (Basic):

... a) a dual energy imaging system...

...b) a computer program product for processing dual energy images

...

...Used for processing dual energy images .

6/3,K/4 (Item 4 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

015602971 \*\*Image available\*\*

WPI Acc No: 2003-665128/200363

XRFX Acc No: N03-530869

Image processing method for digital radiographic images , especially for dual-radiation, dual - energy radiography, whereby first and second energy images are combined prior to decomposition into soft tissue and bone images

Patent Assignee: GE MEDICAL SYSTEMS GLOBAL TECHNOLOGY CO (GENE ); AVINASH G B (AVIN-I); JABRI K N (JABR-I)

Inventor: AVINASH G B ; JABRI K N

Number of Countries: 004 Number of Patents: 005

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 10303086	A1	20030731	DE 1003086	A	20030127	200363 B
US 20030142787	A1	20030731	US 200258616	A	20020128	200363
FR 2836577	A1	20030829	FR 2003891	A	20030128	200365
JP 2003244542	A	20030829	JP 200316826	A	20030127	200366
US 6661873	B2	20031209	US 200258616	A	20020128	200381

Priority Applications (No Type Date): US 200258616 A 20020128

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 10303086	A1		28	H05G-001/60	
US 20030142787	A1			G01B-015/02	
FR 2836577	A1			G06T-005/50	
JP 2003244542	A		22	H04N-005/325	
US 6661873	B2			H05G-001/00	

Image processing method for digital radiographic images , especially for dual-radiation, dual - energy radiography, whereby first and second energy images are combined prior to decomposition into soft tissue and bone images

Inventor: AVINASH G B ...

Abstract (Basic):

... Image processing method for digital radiographic images , especially for dual-radiation, dual - energy radiography

6/3,K/5 (Item 5 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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015535182 \*\*Image available\*\*

WPI Acc No: 2003-597332/200356

XRPX Acc No: N03-476061

Discrete pixel image noise reduction method, involves selectively processing selected regions in former shrunk image and differentially processing non selected image to reduce image noise

Patent Assignee: AVINASH G B (AVIN-I)

Inventor: AVINASH G B

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20030095715	A1	20030522	US 2001991037	A	20011121	200356 B

Priority Applications (No Type Date): US 2001991037 A 20011121

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20030095715	A1		26	G06T-005/00	

Inventor: AVINASH G B

Abstract (Basic):

... Used for reducing noise in discrete pixel images from X-ray dual energy acquisition systems...

6/3,K/6 (Item 6 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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015215366 \*\*Image available\*\*

WPI Acc No: 2003-275903/200327

XRPX Acc No: N03-219143

Automatic dual energy decomposition method for medical X-ray imaging, involves obtaining structure canceled image of internal anatomy according to cancellation equation using evaluated cancellation parameters

Patent Assignee: GE MEDICAL SYSTEMS GLOBAL TECHNOLOGY CO (GENE ); AVINASH G B (AVIN-I); NICOLAS F S (NICO-I); SABOL J M (SABO-I)

Inventor: AVINASH G B ; NICOLAS F S ; SABOL J M

Number of Countries: 003 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20020186872	A1	20021212	US 2001681611	A	20010508	200327 B
JP 2003037778	A	20030207	JP 2002132212	A	20020508	200327
FR 2827059	A1	20030110	FR 20025538	A	20020503	200327

Priority Applications (No Type Date): US 2001681611 A 20010508

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20020186872	A1		12	G06K-009/00	
JP 2003037778	A		13	H04N-005/325	
FR 2827059	A1			G06T-005/00	

Automatic dual energy decomposition method for medical X-ray imaging, involves obtaining structure canceled image of internal anatomy according to cancellation equation using evaluated cancellation parameters

Inventor: AVINASH G B ...

... NICOLAS F S ...

... SABOL J M

Abstract (Basic):

... For automatic dual energy decomposition in tissue specific medical diagnostic X-ray imaging .

6/3,K/7 (Item 7 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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014394363 \*\*Image available\*\*

WPI Acc No: 2002-215066/200227

XRPX Acc No: N02-164653

Dual energy decomposition cancellation parameter determination method for medical diagnostic X-ray imaging , involves varying parameter iteratively, obtaining canceled image and evaluating cancellation variance

Patent Assignee: GENERAL ELECTRIC CO (GENE )

Inventor: AVINASH G B ; KUMP K S ; NICOLAS F S ; ZHAO J

Number of Countries: 022 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 6343111	B1	20020129	US 2000657033	A	20000907	200227 B
WO 200219909	A1	20020314	WO 2001US25090	A	20010810	200227
EP 1317209	A1	20030611	EP 2001963888	A	20010810	200339
			WO 2001US25090	A	20010810	

Priority Applications (No Type Date): US 2000657033 A 20000907

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

US 6343111 B1 7 H05G-001/08

WO 200219909 A1 E A61B-006/03

Designated States (National): JP

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

EP 1317209 A1 E A61B-006/03 Based on patent WO 200219909

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

Dual energy decomposition cancellation parameter determination method for medical diagnostic X-ray imaging , involves varying parameter iteratively, obtaining canceled image and evaluating cancellation variance

Inventor: AVINASH G B ...

... NICOLAS F S

Abstract (Basic):

... For determining cancellation parameter iteratively for dual energy decomposition in bone or tissue specific medical X-ray imaging and other applications...

6/3,K/8 (Item 8 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

(c) 2004 European Patent Office. All rts. reserv.

01646487

Method and apparatus of multi-energy imaging

Verfahren und Vorrichtung fur Vielfachenergie-Bilderzeugung

Procede et dispositif d'imagerie a energie multiple

PATENT ASSIGNEE:

GE Medical Systems Global Technology Company LLC, (3157662), 3000 North Grandview Boulevard, Waukesha, Wisconsin 53188-1696, (US), (Applicant designated States: all)

INVENTOR:

Toth, Thomas L., 15810 Laura Lane, Brookfield, Wisconsin 53005, (US)

LEGAL REPRESENTATIVE:

Pedder, James Cuthbert (34801), GE London Patent Operation, Essex House, 12/13 Essex Street, London WC2R 3AA, (GB)

PATENT (CC, No, Kind, Date): EP 1355321 A2 031022 (Basic)

APPLICATION (CC, No, Date): EP 2003252379 030415;

PRIORITY (CC, No, Date): US 63366 020416

DESIGNATED STATES: AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR;

HU; IE; IT; LI; LU; MC; NL; PT; RO; SE; SI; SK; TR

EXTENDED DESIGNATED STATES: AL; LT; LV; MK

INTERNATIONAL PATENT CLASS: G21K-001/04

ABSTRACT WORD COUNT: 104

NOTE:

Figure number on first page: 1 2

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200343	829
SPEC A	(English)	200343	5615
Total word count - document A			6444
Total word count - document B			0
Total word count - documents A + B			6444

...SPECIFICATION photodiode detects the light energy and generates a corresponding electrical signal. The outputs of the photodiodes are then transmitted to the data processing system for image reconstruction.

Recently, dual energy CT scanning commonly referred to as "tomochemistry" has increasingly been used as a means of gaining diagnostic information of a subject. A principle objective of dual energy scanning is to obtain diagnostic CT images that enhance contrast separation within the image by utilizing two scans at different chromatic energy states. A number of techniques have been proposed to achieve...

...made it possible to switch the kVp potential of the high frequency electromagnetic energy projection source on alternating views. As a result, data for two dual energy images may be obtained in a temporarily interleaved fashion rather than two separate scans made several seconds apart as required with previous CT technology. Simply scanning...

...each kVp spectrum with different x-ray filtration can increase the energy separation to 45 kV in this case. This dramatically improves the effectiveness of dual energy CT imaging.

Therefore, it would be desirable to design an apparatus and method for acquiring imaging data at more than one energy state during a single scan

...

6/3,K/9 (Item 9 from file: 348)

DIALOG(R) File 348:EUROPEAN PATENTS

(c) 2004 European Patent Office. All rts. reserv.

01435732

Medical diagnostic method and apparatus to control dual energy exposure techniques based on image information

Medizinisches Diagnose-Verfahren und -Gerat zur Steuerung von zwei-Energien Belichtungsverfahren auf Basis von Bildinformationen

Procede et appareil de diagnostic medical pour le controle de techniques d'exposition a deux spectres d'energie basees sur des informations d'images

PATENT ASSIGNEE:

GE Medical Systems Global Technology Company LLC, (3157662), 3000 North Grandview Boulevard, Waukesha, Wisconsin 53188-1696, (US), (Applicant designated States: all)

INVENTOR:

Unger, Christopher David, 1180 Hawtorne Drive, Delafield, Wisconsin 53018, (US)

Kump, Kenneth Scott, 614 Crestwood Drive, Waukesha, Wisconsin 53188, (US)

LEGAL REPRESENTATIVE:

Goode, Ian Roy (31097), GE LONDON PATENT OPERATION, Essex House, 12/13 Essex Street, London WC2R 3AA, (GB)

PATENT (CC, No, Kind, Date): EP 1216661 A2 020626 (Basic)  
EP 1216661 A3 030205

APPLICATION (CC, No, Date): EP 2001310287 011210;

PRIORITY (CC, No, Date): US 739127 001218

DESIGNATED STATES: DE; FR

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

INTERNATIONAL PATENT CLASS: A61B-006/03

ABSTRACT WORD COUNT: 123

NOTE:

Figure number on first page: 2

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200226	466
SPEC A	(English)	200226	5153
Total word count - document A			5619
Total word count - document B			0
Total word count - documents A + B			5619

Medical diagnostic method and apparatus to control dual energy exposure techniques based on image information

...ABSTRACT A2

A preferred embodiment of the present invention provides a method and apparatus for optimized **dual energy image** acquisition. The system 200 comprises a **dual energy medical imaging** system 210, a detector 220, a user interface 230, an image segmentation module 240, a characterization module 250, and a control module 260. The method...

...SPECIFICATION A2

The preferred embodiments of the present invention generally relate to **dual energy** exposure techniques, and in particular relate to using **image information** to control **dual energy** exposure techniques.

X-ray **imaging** has long been an accepted medical diagnostic tool. X-ray imaging systems are commonly used to capture, as examples, thoracic, cervical, spinal, cranial, and abdominal...

...compared to air), and, thus, a dominant issue for RAD systems is fixed pattern background noise (i.e., the ribs) present in an x-ray **image**. A technique called **dual energy** can separate the soft tissues from the

bones creating 2 output images. The soft tissue image has the structured background noise removed. Dual energy allows one to view the cancer nodules without the ribs, allowing the nodules to stand out clearly against the soft tissue.

An alternative imaging technique to dual energy exposure is a CR (computed radiography) system. A CR system has a detector with ...an image to control and adjust the parameters for the second exposure.

A preferred embodiment of the present invention provides a method and apparatus for dual energy image acquisition. The method comprises obtaining an image from a first exposure of a patient and segmenting the image into an anatomy of interest. The method further comprises characterizing the segmented anatomy in...

...include attenuation of the segmented anatomy, normalized patient data, and a mathematical model of the segmented anatomy.

A preferred embodiment of the system comprises a dual energy medical imaging system, a detector, a user interface, an image segmentation module, a characterization module, and a control module. The dual energy medical imaging system is adjustable for various exposure dosage levels and techniques. In an alternative embodiment, the dual energy medical imaging system may be adjusted for a low dose scout exposure. In a preferred embodiment, the dual energy medical imaging system adjusts between a first exposure dosage level and a second exposure dosage level. The detector converts exposure energy into digital signals. In a preferred...

...an anatomy of interest. The characterization module characterizes the anatomy of interest according to a set of patient parameters. The control module optimizes the subsequent dual energy image acquisition. In a preferred embodiment, the system further comprises an output for displaying the resulting anatomy images.

Embodiments of the invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 illustrates a preferred embodiment of a method for adjusting dual energy image acquisition.

Figure 2 illustrates a system for adjusting dual energy image acquisition.

Figure 3 illustrates a medical diagnostic image of an anatomy.

Figure 1 illustrates a preferred embodiment of a method 100 for dual energy image acquisition. In step 110, a user selects dual image acquisition on a medical diagnostic imaging system. In a preferred embodiment, the selecting step involves choosing an anatomy of interest (such as chest, legs, head...image may serve as the first image acquisition, but is generally used to estimate patient/organ thickness which is used to optimize the two subsequent dual energy images. The scout image typically utilize <5% of total dose.

In step 130, a medical diagnostic image resulting from the first image acquisition is segmented to find an...

...image may be output on a monitor. The resulting image may also be stored in a memory.

Figure 2 illustrates a system 200 for optimizing dual energy image acquisition. The system 200 for optimizing dual energy image acquisition comprises a patient 205 and a dual energy medical imaging system 210. The dual energy medical imaging system 210 comprises a detector 220, a user interface 230, an image segmentation module 240, a characterization module 250, and a control module 260. In a preferred embodiment, the dual energy medical imaging system 210 may be adjusted quickly for changes in imaging techniques.

The detector 220 converts x-rays to digital signals. Preferably, the

6/3,K/10 (Item 10 from file: 348)  
DIALOG(R) File 348:EUROPEAN PATENTS  
(c) 2004 European Patent Office. All rts. reserv.

00458496  
Bow-tie X-ray filter assembly for dual energy tomography.  
Bogenformige Rontgenstrahl-Filteranordnung fur Zwei-Energie-Spektren-Tomographie.  
Assemblage de filtre a rayons X en arc pour tomographie a deux spectres d'energie.

PATENT ASSIGNEE:

GENERAL ELECTRIC COMPANY, (203903), 1 River Road, Schenectady, NY 12345,  
(US), (applicant designated states: DE;FR;GB;NL)

INVENTOR:

Hampel, Willi Walter, 1735 Manistique Avenue, South Milwaukee, Wisconsin  
53172, (US)

LEGAL REPRESENTATIVE:

Szary, Anne Catherine et al (76781), London Patent Operation, GE  
Technical Services Co. Inc., Essex House, 12-13 Essex Street, London  
WC2R 3AA, (GB)

PATENT (CC, No, Kind, Date): EP 449083 A1 911002 (Basic)  
EP 449083 B1 951129

APPLICATION (CC, No, Date): EP 91104213 910319;

PRIORITY (CC, No, Date): US 498409 900326

DESIGNATED STATES: DE; FR; GB; NL

INTERNATIONAL PATENT CLASS: A61B-006/03; A61B-006/06; G21K-001/10;

ABSTRACT WORD COUNT: 120

LANGUAGE (Publication,Procedural,Application): English; English; English  
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPABF1	455
CLAIMS B	(English)	EPAB95	430
CLAIMS B	(German)	EPAB95	398
CLAIMS B	(French)	EPAB95	503
SPEC A	(English)	EPABF1	3711
SPEC B	(English)	EPAB95	3698
Total word count - document A			4166
Total word count - document B			5029
Total word count - documents A + B			9195

...SPECIFICATION different spectral composition. The construction of x-ray images from two or more images taken with x-ray beams of different spectral composition is termed " dual energy scanning" and finds considerable use in the imaging of soft tissue where single energy scanning may only provide limited contrast. The spectral filter may be equipped with a track or hinge to permit...

...SPECIFICATION different spectral composition. The construction of x-ray images from two or more images taken with x-ray beams of different spectral composition is termed "dual energy scanning" and finds considerable use in the imaging of soft tissue where single energy scanning may only provide limited contrast. The spectral filter may be equipped with a track or hinge to permit...

6/3,K/11 (Item 11 from file: 348)  
DIALOG(R) File 348:EUROPEAN PATENTS

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00241783

Dual energy imaging with kinestatic charge detector.  
Bilderzeugung mittels zweier Energiespektren und kinestatischem  
Ladungsnachweis.

Dispositif d'imagerie a deux spectres d'energie pourvu d'un detecteur de  
charge cinestatique.

PATENT ASSIGNEE:

GENERAL ELECTRIC COMPANY, (203909), 1 River Road, Schenectady New York  
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LEGAL REPRESENTATIVE:

Pratt, Richard Wilson et al (46454), London Patent Operation G.E.  
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PATENT (CC, No, Kind, Date): EP 244766 A2 871111 (Basic)  
EP 244766 A3 890412

APPLICATION (CC, No, Date): EP 87106291 870430;

PRIORITY (CC, No, Date): US 860329 860506

DESIGNATED STATES: DE; FR; GB; NL

INTERNATIONAL PATENT CLASS: H01J-047/02; H04N-005/32; G01T-001/29;

ABSTRACT WORD COUNT: 165

LANGUAGE (Publication,Procedural,Application): English; English; English

Dual energy imaging with kinestatic charge detector.

...ABSTRACT A2

Dual energy imaging with kinestatic charge detector.

A method and apparatus for providing dual energy radiation images  
of a patient in a kinestatic charge detection system utilizes first and  
second kinestatic charge detectors commonly connected to apparatus for  
rotating the detectors about...

6/3,K/12 (Item 12 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

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00158461

Dual energy rapid switching imaging system.

Bilderzeugungssystem mit schneller Umschaltung zweier Rontgenstrahlenenergi  
en.

Systeme d'imagerie avec commutation rapide entre deux energies de  
rayonnement.

PATENT ASSIGNEE:

GENERAL ELECTRIC COMPANY, 1 River Road, Schenectady New York 12305, (US),  
(applicant designated states: DE;NL)

INVENTOR:

Belanger, Barry Frederic, 1627 North 48th Street, Milwaukee Wisconsin  
53208, (US)

Sieb, Lawrence E., 1250 East Newport Drive, Oconomowox Wisconsin 53066,  
(US)

LEGAL REPRESENTATIVE:

Schuler, Horst, Dr. et al , Kaiserstrasse 41, D-6000 Frankfurt/Main 1,  
(DE)  
PATENT (CC, No, Kind, Date): EP 153667 A2 850904 (Basic)  
EP 153667 A3 880127  
APPLICATION (CC, No, Date): EP 85101618 850214;  
PRIORITY (CC, No, Date): US 582558 840222  
DESIGNATED STATES: DE; NL  
INTERNATIONAL PATENT CLASS: H05G-001/60; H05G-001/44; H05G-001/54;  
H04N-005/32;  
ABSTRACT WORD COUNT: 234

LANGUAGE (Publication,Procedural,Application): English; English; English

Dual energy rapid switching imaging system.

...ABSTRACT A2

Dual energy rapid switching imaging system.

For hybrid digital subtraction angiography mask x-ray images are made  
at low and high x-ray tube anode kVp. Both exposures are terminated...

6/3,K/13 (Item 13 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
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00132052

Film-based dual energy radiography.

Filmaufnahmen mit zwei Rontgenstrahlenergien.

Radiographie sur film utilisant deux energies de rayons X.

PATENT ASSIGNEE:

GENERAL ELECTRIC COMPANY, 1 River Road, Schenectady New York 12305, (US),  
(applicant designated states: DE;FR;GB;NL)

INVENTOR:

Andrews, Edward William, 18650 Arden Avenue, Brookfield Wisconsin 53005,  
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Lambert, Thomas Wayne, W337 S4086 Hidden Valley Drive, Dousman Wisconsin  
53118, (US)

LEGAL REPRESENTATIVE:

Schuler, Horst, Dr. et al , Kaiserstrasse 41, D-6000 Frankfurt/Main 1,  
(DE)

PATENT (CC, No, Kind, Date): EP 137465 A2 850417 (Basic)  
EP 137465 A3 880224

APPLICATION (CC, No, Date): EP 84111953 841005;

PRIORITY (CC, No, Date): US 541772 831013

DESIGNATED STATES: DE; FR; GB; NL

INTERNATIONAL PATENT CLASS: H05G-001/60; H04N-005/32; G06F-015/68;

ABSTRACT WORD COUNT: 206

LANGUAGE (Publication,Procedural,Application): English; English; English

...ABSTRACT A2

Film-based dual energy radiography.

Apparatus for reading out individual x-ray images recorded on a  
double-emulsion radiographic film or on separate films that were  
coincident when exposed simultaneously to a polyenergetic or broad x-ray  
photon...

6/3,K/14 (Item 14 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS

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00131993

Film-based dual energy radiography.

Filmaufnahmen mit zwei Röntgenstrahlenergien.

Radiographie sur film utilisant deux energies de rayons X.

PATENT ASSIGNEE:

GENERAL ELECTRIC COMPANY, 1 River Road, Schenectady New York 12305, (US),  
(applicant designated states: DE;FR;GB;NL)

INVENTOR:

Pelc, Norbert Joseph, 6624 W. Garfield Avenue, Wauwatosa Wisconsin 53213,  
(US)

Sandrik, John Michael, 7818 Jackson Park Boulevard, Wauwatosa Wisconsin  
53213, (US)

LEGAL REPRESENTATIVE:

Schuler, Horst, Dr. et al , Kaiserstrasse 41, D-6000 Frankfurt/Main 1,  
(DE)

PATENT (CC, No, Kind, Date): EP 137453 A2 850417 (Basic)  
EP 137453 A3 880330

APPLICATION (CC, No, Date): EP 84111894 841004;

PRIORITY (CC, No, Date): US 541468 831013; US 541785 831013; US 541786  
831013

DESIGNATED STATES: DE; FR; GB; NL

INTERNATIONAL PATENT CLASS: H05G-001/60; G21K-004/00; G03C-005/16;  
G21K-001/10;

ABSTRACT WORD COUNT: 227

LANGUAGE (Publication,Procedural,Application): English; English; English

...ABSTRACT A2

Film-based dual energy radiography.

X-ray energy difference images are obtained simultaneously by  
exposing a body to a broad energy spectrum x-ray beam and using a planar  
radiographic film having photosensitive emulsions facing...

6/3,K/15 (Item 15 from file: 347)

DIALOG(R)File 347:JAPIO

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07457241 \*\*Image available\*\*

SYSTEM AND METHOD FOR SYNCHRONIZATION OF THE ACQUISITION OF IMAGES WITH  
THE CARDIAC CYCLE FOR DUAL ENERGY IMAGING

PUB. NO.: 2002-325756 [JP 2002325756 A]

PUBLISHED: November 12, 2002 (20021112)

INVENTOR(s): NICOLAS FRANCOIS SERGE

RADER AMBER ELAINE

BARBER MICHAEL JOHN

APPLICANT(s): GE MEDICAL SYSTEMS GLOBAL TECHNOLOGY CO LLC

APPL. NO.: 2001-399811 [JP 2001399811]

FILED: December 28, 2001 (20011228)

PRIORITY: 00 752283 [US 2000752283], US (United States of America),  
December 29, 2000 (20001229)

SYSTEM AND METHOD FOR SYNCHRONIZATION OF THE ACQUISITION OF IMAGES WITH  
THE CARDIAC CYCLE FOR DUAL ENERGY IMAGING

INVENTOR(s): NICOLAS FRANCOIS SERGE

RADER AMBER ELAINE

BARBER MICHAEL JOHN

ABSTRACT

PROBLEM TO BE SOLVED: To provide a system and a method for improving the image quality of an X-ray **image** of a patient in a **dual energy** X-ray **imaging** system.

SOLUTION: A cardiac cycle monitor 140 monitors the cardiac cycle of a patient 110 and detects a cardiac trigger. Once the cardiac trigger has...

...the X-ray emitter 120 acquires at least one offset image. The offset and the X-ray images are then combined to form X-ray **images** that may then be employed for **dual energy** X-ray processing.

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11/3,K/1 (Item 1 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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015769760 \*\*Image available\*\*  
WPI Acc No: 2003-831962/200377  
XRPX Acc No: N03-664917

Multiple disease states analysis method using flat panel detector,  
involves displaying generated image and calculated bone mineral density  
to diagnose disease states constituting lung cancer and osteopenia

Patent Assignee: AVINASH G (AVIN-I); EBERHARD J W (EBER-I); THOMAS C  
(THOM-I); UNGER C D (UNGE-I); ZHAO J (ZHAO-I)

Inventor: AVINASH G ; EBERHARD J W; THOMAS C; UNGER C D; ZHAO J

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20030194120	A1	20031016	US 200263338	A	20020412	200377 B

Priority Applications (No Type Date): US 200263338 A 20020412

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20030194120	A1		14	G06K-009/00	

Inventor: AVINASH G ...

Abstract (Basic):

... generating pair of images based on signal output by the flat  
panel detector (102) which receives X-rays passing through the  
patient's body using dual energy X-ray absorptiometry, to diagnose  
disease states constituting lung cancer, breast cancer, pneumonia,  
tuberculosis, bone fracture and osteopenia. The generated image and  
calculated bone mineral...

International Patent Class (Main): G06K-009/00

?

File 5:Biosis Previews(R) 1969-2004/Apr W4  
(c) 2004 BIOSIS  
File 73:EMBASE 1974-2004/Apr W4  
(c) 2004 Elsevier Science B.V.  
File 155:MEDLINE(R) 1966-2004/Apr W4  
(c) format only 2004 The Dialog Corp.  
File 172:EMBASE Alert 2004/Apr W4  
(c) 2004 Elsevier Science B.V.

Set	Items	Description
S1	18854	DUAL()ENERGY
S2	17711	S1(10N) (IMAGE? OR IMAGING OR PICTURE? ? OR GRAPHIC? ? OR P- HOTOGRAPH? OR XRAY? ? OR X() (RAY OR RAYS) OR MASKING OR MASK - OR MASKS)
S3	1	CHARACTERISTIC()MASK? ?
S4	44	(GRADIENT OR SLOPE OR LOCALIZATION) ()MASK? ? OR CANCEL? ()P- ARAMET? OR STRUCTURE()CANCEL?
S5	48941	(LOW OR LOWER OR LESS OR LESSER OR SMALL? OR DECREAS? OR R- EDUC?) (2N)ENERGY
S6	6375682	ANATOMY OR BODY OR BODIES OR TISSUE OR ORGAN? ? OR BONE? ?
S7	3	S2 AND (S3 OR S4)
S8	3	RD S7 (unique items)
S9	300	S2 AND S5
S10	0	(REALTIME OR REAL?(W)TIME OR DYNAMIC? OR SPONTANEOUS? OR A- UTOMATIC?) (15N)S9
S11	5	(REALTIME OR REAL?(W)TIME OR DYNAMIC? OR SPONTANEOUS? OR A- UTOMATIC?) AND S9
S12	2	RD S11 (unique items)

8/3,K/1 (Item 1 from file: 73)  
DIALOG(R)File 73:EMBASE  
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11576367 EMBASE No: 2002147981

**The femoral distal epiphysis of ovariectomized rats as a site for studies on osteoporosis: Structural and mechanical evaluations**

Giavaresi G.; Fini M.; Gnudi S.; De Terlizzi F.; Carpi A.; Giardino R.  
Dr. G. Giavaresi, Servizio di Chirurgia Sperimentale, Istituto di Ricerca  
Codivilla-Putti, IOR, Via di Barbiano 1/10, 40136 Bologna Italy

AUTHOR EMAIL: gianluca.giavaresi@ior.it

Clinical and Experimental Rheumatology ( CLIN. EXP. RHEUMATOL. ) (Italy)  
2002, 20/2 (171-178)

CODEN: CERHD ISSN: 0392-856X

DOCUMENT TYPE: Journal ; Article

LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

NUMBER OF REFERENCES: 41

**MEDICAL DESCRIPTORS:**

bone **structure** ; **cancellous** bone; ovariectomy; morphometrics; bone  
density; densitometry; **dual energy X ray** absorptiometry; bone  
examination; echography; biomechanics; trabecular bone; femur condyle; bone  
strength; weight bearing; young modulus; regression analysis; bone mass;  
osteopenia; reference value; data analysis; nonhuman...

8/3,K/2 (Item 2 from file: 73)  
DIALOG(R)File 73:EMBASE  
(c) 2004 Elsevier Science B.V. All rts. reserv.

06983601 EMBASE No: 1997269523

**Structural histomorphometric analysis of cortical, transitional, and cancellous vertebral bone in intact, ovariectomized, and nandrolone-treated cynomolgus monkeys (Macaca fascicularis)**

Jerome C.P.; Vafai H.T.; Minetti K.L.; Kaplan K.

C.P. Jerome, Skeletech, Inc, 123 NW 180th, Shoreline, WA 98177 United  
States

AUTHOR EMAIL: cjerome@skeletech.com

Journal of Histotechnology ( J. HISTOTECHNOL. ) (United States) 1997,  
20/3 (191-198)

CODEN: JOHID ISSN: 0147-8885

DOCUMENT TYPE: Journal; Article

LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

NUMBER OF REFERENCES: 39

**MEDICAL DESCRIPTORS:**

animal experiment; animal model; animal tissue; article; bone **structure** ;  
**cancellous** bone; controlled study; cortical bone; **dual energy X ray**  
absorptiometry; estrogen deficiency; female; monkey; nonhuman;  
osteoporosis; ovariectomy; periosteum; postmenopause; vertebra

8/3,K/3 (Item 3 from file: 73)  
DIALOG(R)File 73:EMBASE  
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05920209 EMBASE No: 1994327424

**Segmental trends in cancellous bone structure in the thoracolumbar spine: Histological and radiological comparisons**

Edmondston S.J.; Breidahl W.H.; Singer K.P.; Day R.E.; Price R.I.  
School of Physiotherapy, Curtin University, Selby Street, Shenton Park, WA  
6008 Australia  
Australasian Radiology ( AUSTRALAS. RADIOL. ) (Australia) 1994, 38/4  
(272-277)  
CODEN: AURDA ISSN: 0004-8461  
DOCUMENT TYPE: Journal; Article  
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

Segmental variations in vertebral body cancellous bone architecture throughout the thoracolumbar spine were examined using histomorphometry and microradiography, and compared to bone mass measured using **dual energy** X - **ray** absorptiometry. In six human vertebral columns (T1 to L5) bone mineral content (BMC) and bone mineral density (BMD) of each vertebral body was determined...

MEDICAL DESCRIPTORS:

\*bone **structure** ; \* **cancellous** bone; \*spine

?

12/3,K/1 (Item 1 from file: 5)  
DIALOG(R) File 5: Biosis Previews(R)  
(c) 2004 BIOSIS. All rts. reserv.

0011417294 BIOSIS NO.: 199800211541

**Leptin in overweight postmenopausal women: No relationship with metabolic syndrome X or effect of exercise in addition to diet**

AUTHOR: Christensen J O (Reprint); Svendsen O L; Hassager C; Christiansen C

AUTHOR ADDRESS: CCB, Ballerup Byvej 222, DK-2750 Ballerup, Denmark\*\*  
Denmark

JOURNAL: International Journal of Obesity 22 (3): p195-199 March, 1998  
1998

MEDIUM: print

ISSN: 0307-0565

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

...ABSTRACT: STUDY DESIGN AND SUBJECTS: 121 healthy overweight, postmenopausal women (aged 49-58 y, body mass index (BMI) 25-42 kg/m<sup>2</sup>) were randomized to: A **low - energy** -diet, 4.2 MJ/d (n = 51), **low - energy** -diet + standardized physical exercise (n=49) or no intervention (control: n=21) for 12 weeks, followed by 6 months follow-up without intervention. MEASUREMENTS: S-leptin was measured by Radio Immuno Assay (RIA), body composition and fat distribution by **dual energy X - ray** absorptiometry (DEXA) and anthropometry. Factors associated with the metabolic syndrome X and sex hormones were measured. RESULTS: S-leptin was two-fold higher than in normal-weight postmenopausal women and S-leptin was normalized after weight loss induced by the 12-week **low - energy** -diet, without any additive effect of the exercise. Of the factors associated with the metabolic syndrome X, serum-leptin correlated significantly only with sex-hormone...

...postmenopausal women. Leptin does not seem to be associated with the metabolic syndrome X, but rather with fatness. S-leptin is probably associated with both **dynamic** and static effects of adipose tissue. S-leptin did not predict weight loss.

12/3,K/2 (Item 1 from file: 73)  
DIALOG(R) File 73: EMBASE  
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12217083 EMBASE No: 2003329408

**Phalangeal quantitative ultrasound technology and dual energy X - ray densitometry in patients with primary hyperparathyroidism: Influence of sex and menopausal status**

Camozzi V.; Lumachi F.; Mantero F.; Piccolo M.; Luisetto G.

G. Luisetto, Dept. of Medical/Surgical Sciences, Division of Endocrinology, University of Padua, Via Ospedale 105, I-35128 Padua Italy

AUTHOR EMAIL: giovanni.luisetto@unipd.it

Osteoporosis International ( OSTEOPOROSIS INT. ) (United Kingdom) 01

JUL 2003, 14/7 (602-608)

CODEN: OSINE ISSN: 0937-941X

DOCUMENT TYPE: Journal ; Article

LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

NUMBER OF REFERENCES: 37

**Phalangeal quantitative ultrasound technology and dual energy X -**

ray densitometry in patients with primary hyperparathyroidism: Influence of sex and menopausal status

...were measured in patients and controls. QUS measurements included amplitude-dependent speed of sound (AD-SoS), and other parameters derived from the graphic trace: signal **dynamics** (Sdy), first wave amplitude (FWA), bone transmission time (BTT) and ultrasound bone profile index (UBPI). Patients with PHPT showed significantly **lower dual energy X-ray** densitometry (DXA) values and QUS parameters compared to controls (lumbar spine Z-score: controls:  $-0.16 \pm 1.12$ , PHPT:  $-0.70 \pm 1.14$ ,  $P = 0.0001$ ).

File 2:INSPEC 1969-2004/Apr W4  
(c) 2004 Institution of Electrical Engineers

File 6:NTIS 1964-2004/May W1  
(c) 2004 NTIS, Intl Cpyrght All Rights Res

File 8:EI Compendex(R) 1970-2004/Apr W4  
(c) 2004 Elsevier Eng. Info. Inc.

File 34:SciSearch(R) Cited Ref Sci 1990-2004/Apr W4  
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File 35:Dissertation Abs Online 1861-2004/Apr  
(c) 2004 ProQuest Info&Learning

File 65:Inside Conferences 1993-2004/May W1  
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(c)2004 Japan Science and Tech Corp(JST)

File 95:TEME-Technology & Management 1989-2004/Apr W3  
(c) 2004 FIZ TECHNIK

File 99:Wilson Appl. Sci & Tech Abs 1983-2004/Mar  
(c) 2004 The HW Wilson Co.

File 144:Pascal 1973-2004/Apr W4  
(c) 2004 INIST/CNRS

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(c) 2004 American Mathematical Society

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(c)2001 ProQuest Info&Learning

File 483:Newspaper Abs Daily 1986-2004/May 03  
(c) 2004 ProQuest Info&Learning

File 248:PIRA 1975-2004/Apr W4  
(c) 2004 Pira International

Set	Items	Description
S1	14328	DUAL()ENERGY
S2	12344	S1(10N) (IMAGE? OR IMAGING OR PICTURE? ? OR GRAPHIC? ? OR PHOTOGRAPH? OR XRAY? ? OR X() (RAY OR RAYS) OR MASKING OR MASK - OR MASKS)
S3	5	CHARACTERISTIC()MASK? ?
S4	128	(GRADIENT OR SLOPE OR LOCALIZATION)()MASK? ? OR CANCEL?()PARAMET? OR STRUCTURE()CANCEL?
S5	364708	(LOW OR LOWER OR LESS OR LESSER OR SMALL? OR DECREAS? OR REDUC?) (2N)ENERGY
S6	6	S2 AND (S3 OR S4)
S7	3	RD S6 (unique items)
S8	1	S7 NOT PY>2001
S9	327	S2 AND S5
S10	20	(REALTIME OR REAL?(W)TIME OR DYNAMIC? OR SPONTANEOUS? OR AUTOMATIC?) AND S9
S11	13	RD S10 (unique items)
S12	10	S11 NOT PY>2001

8/3,K/1 (Item 1 from file: 34)  
DIALOG(R) File 34:SciSearch(R) Cited Ref Sci  
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02263327 Genuine Article#: KP258 No. References: 34

**Title: RELATIONSHIPS BETWEEN BONE-STRUCTURE IN THE ILIAC CREST AND  
BONE-STRUCTURE AND STRENGTH IN THE LUMBAR SPINE**

Author(s): DEMPSTER DW; FERGUSONPELL MW; MELLISH RWE; COCHRAN GVB; XIE F;  
FEY C; HORBERT W; PARISIEN M; LINDSAY R

Corporate Source: HELEN HAYES HOSP, REG BONE CTR, ROUTE 9W/W  
HAVERSTRAW//NY/10993; HELEN HAYES HOSP, ORTHOPED ENGN RES CTR/W  
HAVERSTRAW//NY/10993; COLUMBIA UNIV COLL PHYS & SURG, DEPT PATHOL/NEW  
YORK//NY/10032; COLUMBIA UNIV COLL PHYS & SURG, DEPT MED/NEW  
YORK//NY/10032; COLUMBIA UNIV COLL PHYS & SURG, DEPT ORTHOPED/NEW  
YORK//NY/10032

Journal: OSTEOPOROSIS INTERNATIONAL, 1993, V3, N2 (MAR), P90-96

ISSN: 0937-941X

Language: ENGLISH Document Type: ARTICLE (Abstract Available)

Research Fronts: 91-3082 001 ( DUAL - ENERGY X - RAY ABSORPTIOMETRY IN  
SPINAL OSTEOPOROSIS; BONE MASS; POSTMENOPAUSAL WOMEN; TOTAL-BODY  
CALCIUM)

?

12/3,K/1 (Item 1 from file: 2)  
DIALOG(R)File 2:INSPEC  
(c) 2004 Institution of Electrical Engineers. All rts. reserv.

5615222 INSPEC Abstract Number: A9715-8760J-007, B9708-7510B-086  
**Title: Dual energy radiography using active detector technology**  
Author(s): Seibert, J.A.; Poage, T.F.; Alvarez, R.E.  
Author Affiliation: Dept. of Radiol., California Univ., Davis, CA, USA  
Conference Title: 1996 IEEE Nuclear Science Symposium Conference Record  
(Cat. No.96CH35974) Part vol.2 p.1244-7 vol.2  
Editor(s): Del Guerra, A.  
Publisher: IEEE, New York, NY, USA  
Publication Date: 1996 Country of Publication: USA 3 vol. xlviii+1937  
pp.  
ISBN: 0 7803 3534 1 Material Identity Number: XX97-00960  
U.S. Copyright Clearance Center Code: 0 7803 3534 1/97/\$10.00  
Conference Title: 1996 IEEE Nuclear Science Symposium. Conference Record  
Conference Date: 2-9 Nov. 1996 Conference Location: Anaheim, CA, USA  
Language: English  
Subfile: A B  
Copyright 1997, IEE

Abstract: A new technology has been implemented using an "active-detector" comprised of two computed radiography (CR) imaging plates in a sandwich geometry for dual - energy radiography. This detector allows excellent energy separation, short exposure time, and high signal to noise ratio (SNR) for clinically robust "bone-only" and "soft-tissue..."

... is initiated first, followed by a short burst of intense light to erase the latent image on the front plate, and then a 50 kVp ( low energy ) exposure. A personal computer interfaced to the x-ray generator, filter wheel, and active detector system orchestrates the acquisition sequence within a time period of 150 msec. The front and back plates are processed using a CR readout algorithm with fixed speed and wide dynamic range. "Bone-only" and "soft-tissue only" images are calculated by geometric alignment of the two images and application of dual energy decomposition algorithms on a pixel by pixel basis. Resultant images of a calibration phantom demonstrate an increase of SNR/sup 2//dose by ~73 times when compared to a single exposure "passive-detector" comprised of CR imaging plates, and an ~8 fold increase compared to a screen-film dual - energy cassette comprised of different phosphor compounds. In conclusion, dual energy imaging with "active detector" technology is clinically feasible and can provide substantial improvements over conventional methods for dual-energy radiography.

12/3,K/2 (Item 2 from file: 2)  
DIALOG(R)File 2:INSPEC  
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5591857 INSPEC Abstract Number: A9713-0785-012, B9707-7450-010, C9707-7410H-014  
**Title: Single shot dual energy reverse geometry X-radiography (RGX)**  
Author(s): Wojcik, R.; Majewski, S.; Parker, F.R.; Winfree, W.P.  
Author Affiliation: Thomas Jefferson Nat. Accel. Facility, Newport News, VA, USA  
Conference Title: 1996 IEEE Nuclear Science Symposium Conference Record  
(Cat. No.96CH35974) Part vol.2 p.811-15 vol.2

Editor(s): Del Guerra, A.  
Publisher: IEEE, New York, NY, USA  
Publication Date: 1996 Country of Publication: USA 3 vol. xlviii+1937  
pp.  
ISBN: 0 7803 3534 1 Material Identity Number: XX97-00960  
U.S. Copyright Clearance Center Code: 0 7803 3534 1/97/\$10.00  
Conference Title: 1996 IEEE Nuclear Science Symposium. Conference Record  
Conference Date: 2-9 Nov. 1996 Conference Location: Anaheim, CA, USA  
Language: English  
Subfile: A B C  
Copyright 1997, IEE

Abstract: High quality inexpensive **dual energy** X-radiographic **imaging** has been achieved with a totally digital **X - ray** system. Using Digiray's unique configuration of X-ray source, object, and X-ray detector, both the high and low **energy** images are acquired with a single X-ray exposure at **real time** rates. The images produced are nearly scatter free and are of high resolution (~7 lp/mm). Combining this with the RGX's laminographic ability produces a **real - time** dual energy computed tomography system.

...Identifiers: **dual energy** X-radiographic **imaging** ; ...

... low **energy** images...

... **real - time** dual energy computed tomography system

12/3,K/3 (Item 1 from file: 34)  
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci  
(c) 2004 Inst for Sci Info. All rts. reserv.

06541942 Genuine Article#: ZA026 No. References: 14  
Title: **Leptin in overweight postmenopausal women: No relationship with metabolic syndrome X or effect of exercise in addition to diet**  
Author(s): Christensen JO (REPRINT) ; Svendsen OL; Hassager C; Christiansen C  
Corporate Source: CCB, BALLERUP BYVEJ 222/DK-2750 BALLERUP//DENMARK/  
(REPRINT)  
Journal: INTERNATIONAL JOURNAL OF OBESITY, 1998, V22, N3 (MAR), P195-199  
ISSN: 0307-0565 Publication date: 19980300  
Publisher: STOCKTON PRESS, HOUNDMILLS, BASINGSTOKE, HAMPSHIRE, ENGLAND RG21 6XS  
Language: English Document Type: ARTICLE (ABSTRACT AVAILABLE)

...Abstract: DESIGN AND SUBJECTS: 121 healthy overweight, postmenopausal women (aged 49-58 y, body mass index (BMI) 25-42 kg/m<sup>2</sup>) were randomized to: A **low - energy** -diet, 4.2 MJ/d (n = 51), **low - energy** -diet + standardized physical exercise (n=49) or no intervention (control: n=21) for 12 weeks, followed by 6 months follow-up without intervention.

MEASUREMENTS: S-leptin was measured by Radio Immuno Assay (RIA), body composition and fat distribution by **dual energy X - ray** absorptiometry (DEXA) and anthropometry. Factors associated with the metabolic syndrome X and sex hormones were measured.

RESULTS: S-leptin was two-fold higher than in normal-weight postmenopausal women and S-leptin was normalized after weight loss induced by the 12-week **low - energy** -diet, without any additive effect of the exercise. Of the factors associated with the metabolic syndrome

X, serum-leptin correlated significantly only with sex-hormone...

...postmenopausal women. Leptin does not seem to be associated with the metabolic syndrome X, but rather with fatness. S-leptin is probably associated with both **dynamic** and static effects of adipose tissue, S-leptin did not predict weight loss.

12/3,K/4 (Item 2 from file: 34)

DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

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06280636 Genuine Article#: YF633 No. References: 32

Title: **Resting metabolic rate in African-American and Caucasian girls**

Author(s): Yanovski SZ (REPRINT) ; Reynolds JC; Boyle AJ; Yanovski JA

Corporate Source: NIDDKD,DIV DIGEST DIS & NUTR, NIH, BLDG 45, RM

6AN-18/BETHESDA//MD/20892 (REPRINT); NICHHD,DEV ENDOCRINOL BRANCH,

NIH/BETHESDA//MD/20892; NIH,OFF DIRECTOR/BETHESDA//MD/20892; NIH,DEPT

NUCL MED, WARREN GRANT MAGNUSON CLIN CTR/BETHESDA//MD/20892

Journal: OBESITY RESEARCH, 1997, V5, N4 (JUL), P321-325

ISSN: 1071-7323 Publication date: 19970700

Publisher: NORTH AMER ASSOC STUDY OBESITY, 6400 PERKINS RD, BATON ROUGE, LA 70808

Language: English Document Type: ARTICLE (ABSTRACT AVAILABLE)

...Abstract: and 85% for age and race, based on data from the First National Health and Nutrition Examination Survey, Fat free mass (FFM) was measured by **dual - energy X - ray** absorptiometry, RMR was measured with a Deltatrac indirect calorimeter under controlled conditions after the subjects underwent an overnight fast, The slopes of the regression equations...

...of covariance). This significance was maintained after exclusion of total body bone mineral content, These data suggest that normal-weight prepubertal AA girls may have **reduced** resting **energy** expenditure compared with C girls.

...Research Fronts: DENSITY; BODY-WEIGHT REGULATION; FAT RESTRICTION)

95-0385 001 (BETA(3)-ADRENERGIC RECEPTOR; BROWN ADIPOCYTES;

ADENYL-L-CYCLASE ACTIVATION; GUINEA-PIG TAENIA CECUM)

95-0456 001 ( **DYNAMIC** SURFACE TENSIONS OF SURFACTANT MIXTURES; CENTRAL PRECOCIOUS PUBERTY; CALCIUM-REDUCED WHEY-PROTEIN CONCENTRATES; AIR/WATER INTERFACE)

95-4445 001 (SEVERE OBESITY; WEIGHT CHANGE HISTORY; SMOKING...

12/3,K/5 (Item 1 from file: 35)

DIALOG(R)File 35:Dissertation Abs Online

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01802961 ORDER NO: AADAA-I9927253

DUAL - ENERGY - X - RAY IMAGING TO MEASURE PHASE VOLUME FRACTIONS IN A TRANSIENT MULTIPHASE FLOW (FUEL COOLANT INTERACTION)

Author: LOEWEN, ERIC PAUL

Degree: PH.D.

Year: 1999

Corporate Source/Institution: THE UNIVERSITY OF WISCONSIN - MADISON ( 0262)

Source: VOLUME 60/08-B OF DISSERTATION ABSTRACTS INTERNATIONAL.  
PAGE 4189. 224 PAGES

**DUAL - ENERGY - X - RAY IMAGING TO MEASURE PHASE VOLUME FRACTIONS IN A  
TRANSIENT MULTIPHASE FLOW (FUEL COOLANT INTERACTION)**

...objective of this research was to visualize the pre-mixing phase of a fuel-coolant interaction (FCI) by using combinations of high-speed cinematography and **dual energy X-ray imaging** to identify and quantify the spatial and temporal characteristics of the three FCI phases-metal (fuel), liquid (coolant water), and voids (generated steam). (1) The high-speed cinematography imaging subsystem and the **low - energy X-ray** imaging subsystem provided visual photographs and distinguished generated voids from water. (2) The high-energy X-Ray imaging subsystem provided additional discernment of metal from water and vapor.

This is the first time that **dynamic** dual X-ray images have been provided with quantitative results. The data provide new information concerning the melt fractions, melt jet configuration, melt jet velocity...

12/3,K/6 (Item 2 from file: 35)  
DIALOG(R)File 35:Dissertation Abs Online  
(c) 2004 ProQuest Info&Learning. All rts. reserv.

01755798 ORDER NO: AADAA-I9980057  
**Improving object classification in x-ray luggage inspection**  
Author: Shi, Xinhua  
Degree: Ph.D.  
Year: 2000  
Corporate Source/Institution: Virginia Polytechnic Institute and State University (0247)  
Source: VOLUME 61/07-B OF DISSERTATION ABSTRACTS INTERNATIONAL.  
PAGE 3764. 226 PAGES  
ISBN: 0-599-85788-9

X-ray detection methods have increasingly been used as an effective means for the **automatic** detection of explosives. While a number of devices are now commercially available, most of these technologies are not yet mature. The purpose of this research has been to investigate methods for using **x - ray dual - energy** transmission and scatter **imaging** technologies more effectively.

Followed by an introduction and brief overview of x-ray detection technologies, a model for a prototype x-ray scanning system, which...

...ray source output energy in the prototype scanning system is not monochromatic, resulting in two problems: spectrum overlap and output signal unbalance between high and **low energy** levels, which will degrade the performance of **dual - energy x - ray** sensing. A copper filter has been introduced and a numerical optimization method to remove thickness effect of objects has been developed to improve the system...

12/3,K/7 (Item 3 from file: 35)  
DIALOG(R)File 35:Dissertation Abs Online  
(c) 2004 ProQuest Info&Learning. All rts. reserv.

1025577 ORDER NO: AAD88-17138  
**DYNAMIC DUAL - ENERGY X - RAY TECHNIQUES FOR CARDIAC IMAGING**  
Author: MOLLOI, SABEE Y.  
Degree: PH.D.  
Year: 1987  
Corporate Source/Institution: THE UNIVERSITY OF WISCONSIN - MADISON (

0262)

Source: VOLUME 49/08-B OF DISSERTATION ABSTRACTS INTERNATIONAL.  
PAGE 2980. 182 PAGES

**DYNAMIC DUAL - ENERGY X - RAY TECHNIQUES FOR CARDIAC IMAGING**

...Cu filtration), was studied.

The potential advantages of the DE technique for motion-immune enhancement of coronary angiograms were assessed by subjectively comparing DE, unsubtracted **low - energy** (L) and high-pass (HP) filtered L images of selective canine coronary angiograms. Although HP filtration permitted some contrast enhancement, the images had a greater...

12/3,K/8 (Item 1 from file: 95)

DIALOG(R)File 95:TEME-Technology & Management  
(c) 2004 FIZ TECHNIK. All rts. reserv.

00900479 F95076124983

**Dual-energy computed radiography: Improvements in processing**

(Digitale Zwei-Spektren-Radiographie: Verbesserungen bei der Bildverarbeitung)

Ergun, DL; Peppler, WW; Dobbins, JT; Zink, FE; Kruger, DG; Kelcz, F;  
Bruijn, FJde; Bellers, EW; ua  
Philips Shelton, USA; Lunar Madison, USA; Univ. of Wisconsin, Madison, USA;  
Duke Univ., Durham, USA; u.a.

Medical Imaging 1994, Image Processing, Newport Beach, USA, Feb 15-18, 1994  
1994

Document type: Conference paper Language: English

Record type: Abstract

**ABSTRACT:**

...with gadolinium to produce a bi-modal x-ray spectrum and a cassette containing four CR imaging plates. The front and back plates record the **low - energy** and high-energy images, respectively, and the middle two plates serve as an intermediate filter. Since the authors' initial report, a number of improvements have been made to make the system more practical. An **automatic** registration algorithm based on image features has been developed to align the front and back image plates. There have been two improvements in scatter correction...

...and a correction algorithm is applied to account for scatter variations between patients. An improved basis material decomposition (BMD) algorithm has been developed to facilitate **automatic** operation of the algorithm. Finally, two new noise suppression techniques are under investigation: one adjusts the noise filtering parameters depending on the strength of edge...

...detected image in order to greatly reduce quantum mottle while minimizing the introduction of artifacts; a second routine uses knowledge of the region of valid **low - energy** and high-energy image data to suppress noise with minimal introduction of artifacts. This paper is a synthesis of recent work aimed at improving the...

DESCRIPTORS: DIGITAL RADIOGRAPHY; **DUAL ENERGY IMAGING**; COMPARISON OF METHODS; DISEASE; CLINICAL APPLICATIONS; DETECTION SENSITIVITY; LUNG; FILM SCREEN COMBINATION; LIGHT FILTERS; IMAGE ENHANCEMENT; ALGORITHM; AUTOMATISATION; SYSTEM DESCRIPTION; FIRMS AND INSTITUTIONS; VIDEO DISKS...

12/3,K/9 (Item 2 from file: 95)

DIALOG(R)File 95:TEME-Technology & Management

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00893588 F95040504983

**Quantitative double-tracer autoradiography with tritium and carbon-14 using imaging plates: Application to myocardial metabolic studies in rats**

(Doppeltracer-Autoradiographie mittels Tritium und 14.C bei Verwendung von Bildplatten: Anwendung auf myokardiale Stoffwechseluntersuchungen mit Ratten)

Yamane, Y; Ishide, N; Kagaya, Y; Takeyama, D; Shiba, N; Chida, M;  
Sekiguchi, Y; Nozaki, T; Ido, T; Shirato, K  
Tohoku Univ., Sendai, J

Journal of Nuclear Medicine, v36, n3, pp518-524, 1995

Document type: journal article Language: English

Record type: Abstract

ISSN: 0161-5505

**ABSTRACT:**

...distributions. The general use imaging plate with a protective layer detects 14.C radioactivity, but it does not detect 3.H radioactivity which has a **lower energy** distribution than 14.C. Recently, a 3.H-sensitive imaging plate without a protective layer was developed. The 3.H distribution image is obtained by...

...tracer autoradiography with 3.H and 14.C which has high sensitivity, a high spatial resolution of 50 micron and superior linearity with a wide **dynamic** range of 10.4 to 10.5 allows accurate quantification of the tissue radioactivity of the two radiopharmaceuticals. The authors used the computer-assisted image...

...DESCRIPTORS: RADIOACTIVE; AUTORADIOGRAPHY; VIDEO DISKS; CARBON; **DUAL ENERGY IMAGING** ; QUANTITATIVE ANALYSIS; DETECTION SENSITIVITY; ISCHEMIA; SPATIAL RESOLUTION; **IMAGE** PROCESSING; EXPERIMENTAL RESULTS

12/3,K/10 (Item 1 from file: 144)

DIALOG(R)File 144:Pascal

(c) 2004 INIST/CNRS. All rts. reserv.

15510810 PASCAL No.: 02-0206974

**Efficacy of low-intensity pulsed ultrasound in the prevention of osteoporosis following spinal cord injury**

**Fractures and osteoporosis**

WARDEN S J; BENNELL K L; MATTHEWS B; BROWN D J; MCMEEKEN J M; WARK J D  
Center for Sports Medicine Research and Education, School of  
Physiotherapy, University of Melbourne, Parkville, VIC, Australia;  
Victorian Spinal Cord Service, Austin and Repatriation Medical Center,  
Heidelberg, VIC, Australia; Department of Medicine, University of Melbourne  
, Parkville, VIC, Australia; Bone and Mineral Service, Royal Melbourne  
Hospital, Parkville, VIC, Australia

Journal: Bone : (New York, NY), 2001, 29 (5) 431-436

Language: English

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... US), a high-frequency acoustic energy traveling in the form of a mechanical wave, represents a potential site-specific intervention for osteoporosis. Bone is a **dynamic** tissue that remodels in response to applied mechanical stimuli. As a form of mechanical stimulation, US is anticipated to produce a similar remodeling response. This...

...spatial-averaged temporal-averaged intensity was set at 30 mW/cm SUP 2 . Bone status was assessed at baseline and following the intervention period by **dual - energy X - ray** absorptiometry and quantitative US. SCI

resulted in significant bone loss. Bone mineral content decreased by  $7.5 \pm 3.0\%$  in inactive US-treated calcanei (p...

English Descriptors: Trauma; Spinal cord; Human; Paralysis; Complication; Treatment; Osteoporosis; Technique; Prevention; Ultrasound; Low intensity; Acoustic **energy** ; Mechanical wave; Quantitative analysis; X ray absorption spectrometry; Mechanotransduction; Clinical trial; Osteogenesis; Sonography

?

File 348:EUROPEAN PATENTS 1978-2004/Apr W04

(c) 2004 European Patent Office

File 349:PCT FULLTEXT 1979-2002/UB=20040415,UT=20040408

(c) 2004 WIPO/Univentio

Set	Items	Description
S1	680	DUAL()ENERGY
S2	561	S1(10N) (IMAGE? OR IMAGING OR PICTURE? ? OR GRAPHIC? ? OR PHOTOGRAPH? OR XRAY? ? OR X() (RAY OR RAYS) OR MASKING OR MASK - OR MASKS)
S3	5	CHARACTERISTIC()MASK? ?
S4	114	(GRADIENT OR SLOPE OR LOCALIZATION) ()MASK? ? OR CANCEL? ()PARAMET? OR STRUCTURE()CANCEL?
S5	53673	(LOW OR LOWER OR LESS OR LESSER OR SMALL? OR DECREASES? OR REDUC?) (2N)ENERGY
S6	1	S2(S) (S3 OR S4)
S7	89	S2(S)S5
S8	6	(REALTIME OR REAL? (W)TIME OR DYNAMIC? OR SPONTANEOUS? OR AUTOMATIC?) (S)S7
S9	6	IDPAT (sorted in duplicate/non-duplicate order)
S10	6	IDPAT (primary/non-duplicate records only)
S11	5	S2 AND IC=G06K-009/00
S12	5	S11 NOT (S6 OR S10)

6/3,K/1 (Item 1 from file: 349)  
DIALOG(R) File 349:PCT FULLTEXT  
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00886237 \*\*Image available\*\*

**DUAL ENERGY IMAGING USING AUTOMATICALLY DETERMINED SUBTRACTION PARAMETERS  
IMAGERIE A BI-ENERGIE UTILISANT DES PARAMETRES DE SOUSTRACTION DETERMINES  
AUTOMATIQUEMENT**

Patent Applicant/Assignee:

GENERAL ELECTRIC COMPANY, 1 River Road, Schenectady, NY 12345, US, US  
(Residence), US (Nationality)

Inventor(s):

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ZHAO Jianguo, 18 Eastview Drive, Apartment 1, Watervliet, NY 12189, US,  
NICOLAS Francois Serge, 116 North 87th Street, Wauwatosa, WI 53226, US,  
KUMP Kenneth Scott, 614 Crestwood Drive, Waukesha, WI 53188, US,

Legal Representative:

BENINATI John F (et al) (agent), General Electric Company, 3135 Easton  
Turnpike W3C, Fairfield, CT 06431, US,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200219909 A1 20020314 (WO 0219909)

Application: WO 2001US25090 20010810 (PCT/WO US0125090)

Priority Application: US 2000657033 20000907

Designated States: JP

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

Publication Language: English

Filing Language: English

Fulltext Word Count: 3751

Fulltext Availability:

Detailed Description

English Abstract

A method for determining a suggested value for a **cancellation parameter** for a **dual energy** decomposition includes obtaining (210) a first energy level **image** of internal structure, obtaining (210) a second, lower, energy level image of the internal structure, and iteratively processing (214) the images to determine a provisional value for the **cancellation parameter**. The iteration includes varying a **cancellation parameter** in a cancellation equation, obtaining a **structure cancelled** image from the first and second energy level images according to the cancellation equation, and evaluating a cancellation metric from the **structure cancelled** image. The provisional **cancellation parameter** may then be chosen (e.g., as the value that approximately minimizes a variance cancellation metric). Further iterations (222) may be formed around the provisional **cancellation parameter** to refine the provisional **cancellation parameter** into a final **cancellation parameter**.

Detailed Description

**DUAL ENERGY IMAGING USING AUTOMATICALLY DETERMINED SUBTRACTION  
PARAMETERS**

**BACKGROUND OF THE INVENTION**

The present invention relates to medical diagnostic **X - ray imaging**.  
In

particular, the present invention relates to **dual energy**  
decomposition for tissue specific **imaging** using a computer assisted  
detection technique to obtain a **cancellation parameter**.

Today, doctors and technicians commonly have access to very sophisticated medical diagnostic X-ray imaging devices. Typically during the operation of an X-ray imaging...

...and previously experienced.

#### BRIEF SUMMARY OF THE INVENTION

A preferred embodiment of the present invention provides a method for determining a suggested value for a **cancellation parameter** for a **dual energy** decomposition. The method includes obtaining a first energy level **image** of internal structure, obtaining a second, lower, energy level image of the internal structure, and iteratively processing the images to determine a provisional value for the **cancellation parameter**. In particular, the iteration includes varying a **cancellation parameter** in a cancellation equation, obtaining a **structure cancelled** image from the first and second energy level images according to the cancellation equation, and evaluating a cancellation metric from the **structure cancelled** image. The provisional **cancellation parameter** may then be chosen (e.g., as the value that approximately minimizes a variance cancellation metric). Further iterations may be performed around the provisional **cancellation parameter** to refine the provisional **cancellation parameter** into a final **cancellation parameter**.

Similarly, the present invention may be embodied in a medical diagnostic imaging processing system. The system includes a processing circuit, and a memory coupled to...

?

10/3,K/1 (Item 1 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
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01070692

Device and method for inspection of baggage and other objects  
Verfahren und Gerat um Gepack und andere Gegenstande zu untersuchen  
Dispositif et procede d'inspection de baggage et d'autres objects  
PATENT ASSIGNEE:

VIVID TECHNOLOGIES, INC., (1472640), 590 Lincoln Street, Waltham, MA  
02154, (US), (Applicant designated States: all)

INVENTOR:

Stein, Jay A., 314 Dartmouth Street, Boston, Massachusetts 02116, (US)  
Krug, Kristoph D., 19 Barber Road, Framingham, Massachusetts 01701, (US)  
Taylor, Adam L., 64 Wood Lane, Acton, Massachusetts 01720, (US)

LEGAL REPRESENTATIVE:

Woodward, John Calvin et al (37981), Venner Shipley & Co. 20 Little  
Britain, London EC1A 7DH, (GB)

PATENT (CC, No, Kind, Date): EP 942295 A2 990915 (Basic)  
EP 942295 A3 011107

APPLICATION (CC, No, Date): EP 99201028 910808;

PRIORITY (CC, No, Date): US 566083 900810

DESIGNATED STATES: DE; FR; GB

RELATED PARENT NUMBER(S) - PN (AN):

EP 542911 (EP 91916528)

RELATED DIVISIONAL NUMBER(S) - PN (AN):

(EP 2003027187)

INTERNATIONAL PATENT CLASS: G01V-005/00

ABSTRACT WORD COUNT: 145

NOTE:

Figure number on first page: NONE

LANGUAGE (Publication,Procedural,Application): English; English; English  
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	9937	469
SPEC A	(English)	9937	17680
Total word count - document A			18149
Total word count - document B			0
Total word count - documents A + B			18149

...SPECIFICATION time to process each CT scan and so is not suitable to be solely responsible for detecting and indicating suspect specific materials on-line in **real time** . Coupling a CT scanner 1002 with a dual energy x-ray inspection device 1000, as shown schematically in Fig. 18a, increases the algorithmic efficiency of...

...in the dual energy x-ray inspector device 1004 can be deployed to also perform CT scanning when required. In such embodiments 1004, a somewhat **less accurate dual energy x - ray** system can be tolerated, for example one using coarser grained pixels, because of the additional CT scanning capabilities.

Other embodiments are within scope of the...

10/3,K/2 (Item 2 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
(c) 2004 European Patent Office. All rts. reserv.

00819937

X-ray bone densitometry

**Dichtemessung von Knochen mittels Rontgenstrahlung**

**Densitometrie osseuse par rayons X**

**PATENT ASSIGNEE:**

HOLOGIC, INC., (947721), 590 Lincoln Street, Waltham, MA 02154, (US),  
(applicant designated states: DE;FR;GB;IT;NL)

**INVENTOR:**

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Weinstein, Joel B., 12 Kevin Circle, Framingham, Massachusetts 01701,  
(US)  
Zhu, Dao-Yi, 113 Hamilton Avenue, Lynn, Massachusetts 01902, (US)

**LEGAL REPRESENTATIVE:**

Whitten, George Alan et al (71691), R.G.C. Jenkins & Co., 26 Caxton  
Street, London SW1H 0RJ, (GB)

**PATENT (CC, No, Kind, Date):** EP 761166 A2 970312 (Basic)  
EP 761166 A3 981021

**APPLICATION (CC, No, Date):** EP 96306489 960906;

**PRIORITY (CC, No, Date):** US 525909 950908; US 524997 950908

**DESIGNATED STATES:** DE; FR; GB; IT; NL

**INTERNATIONAL PATENT CLASS:** A61B-006/00; A61B-006/04;

**ABSTRACT WORD COUNT:** 220

**LANGUAGE (Publication,Procedural,Application):** English; English; English

**FULLTEXT AVAILABILITY:**

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPAB97	2080
SPEC A	(English)	EPAB97	16777
Total word count - document A			18857
Total word count - document B			0
Total word count - documents A + B			18857

...SPECIFICATION system used.

Fig. 25 is a flow diagram of the operation of the system of the present invention implementing the extraction of the single and **dual energy images**. Initially, the C-arm 56 and the table 50 are moved to scan the patient to obtain the dual energy scan data (step 250). The...

...measured dual energy scan data is stored in memory, the computer 38 retrieves the stored dual energy scan data and processes the scan data into **dual energy image** data and single energy **image** data (steps 254 and 256). The **dual energy image** data is stored in memory in preferably a **dual energy image** data record (step 258). As noted, single energy **image** data is preferably obtained from the **lower** radiation **energy** range. The **low energy** value is **less** than the high energy value for the system used and is, for example, about 100 keV in relation to a high energy value of about...

...blurred mask subtraction technique discussed above (step 260) to obtain filtered single energy image data. In order to display the single energy image data, the **dynamic** range of density of the image data is determined as described above (step 262). Once the single energy image data is constructed the data is stored in the memory of the computer 38 of the workstation 34 in a single energy **image** data record (step 264).

After the **dual energy** and single energy **image** data records are created, the operator can then display either image by, for example, pressing a function key on keyboard 42 of the workstation 34...

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00602971

Method and apparatus for imaging radiation beams of different wavelengths  
Verfahren und Methode zur Bildaufnahme von Strahlung verschiedener  
Wellenlänge

Methode et appareil pour prise de vue des rayons de radiations de  
differentes longueurs d'ondes

PATENT ASSIGNEE:

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(US), (applicant designated states: DE;FR;GB)

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Street, Robert A., 894 Lapava Avenue, Palo Alto, California 94306, (US)

LEGAL REPRESENTATIVE:

Skone James, Robert Edmund et al (50281), GILL JENNINGS & EVERY Broadgate  
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PATENT (CC, No, Kind, Date): EP 600673 A2 940608 (Basic)

EP 600673 A3 940831

EP 600673 B1 990203

APPLICATION (CC, No, Date): EP 93309438 931125;

PRIORITY (CC, No, Date): US 981691 921125

DESIGNATED STATES: DE; FR; GB

INTERNATIONAL PATENT CLASS: H04N-003/15; H04N-005/32; H04N-001/04;

ABSTRACT WORD COUNT: 123

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	9905	856
CLAIMS B	(German)	9905	809
CLAIMS B	(French)	9905	983
SPEC B	(English)	9905	6604
Total word count - document A			0
Total word count - document B			9252
Total word count - documents A + B			9252

...SPECIFICATION from the two cameras are then subtracted one from the  
other. The method by which the images are subtracted is not disclosed.

Fukagawa et al., " Real Time K-edge Subtraction X-ray Imaging",  
Review of Scientific Instruments, 60(7), July, 1989, page 2268, disclose  
an x-ray K-edge subtraction television system for non- invasive  
angiography using synchrotron radiation. The image to be detected,  
including a contrast material, is irradiated by monochromitized dual  
energy x - ray flux, or alternately, by a high speed monochromator, so  
that the object is irradiated by the flux above and below the K-edge  
photon energy...

...and below the K-edge photon energy, to produce video signals that are  
processed to display the subtraction images of pairs of successive images  
in real time . In the system, the photon energy of x-rays is changed  
synchronously with the television frames. The video signal of each frame  
is memorized and...

...of successive images are shown. In the one color camera method, the  
higher energy x-ray images are picked up as red images and the lower  
energy ones as blue images with electronic shutters combined with color  
filters. The images are stored and read out by an analog subtraction  
circuit to be...

...two kinds of x-ray irradiation. Each video signal (one field) is memorized in a memory A and B as image data of higher photon **energy** and **lower** one respectively The image data are read out at the same time and fed to

10/3,K/4 (Item 4 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
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00508728

DEVICE AND METHOD FOR INSPECTION OF BAGGAGE AND OTHER OBJECTS  
VERFAHREN UND GERAT UM GEPACK UND ANDERE GEGENSTANDE ZU UNTERSUCHEN  
DISPOSITIF ET PROCEDE D'INSPECTION DE BAGAGES ET D'AUTRES OBJETS  
PATENT ASSIGNEE:

VIVID TECHNOLOGIES, INC., (1472640), 590 Lincoln Street, Waltham, MA  
02154, (US), (Proprietor designated states: all)

INVENTOR:

STEIN, Jay, A., 15 Carter Drive, Framingham, MA 01701, (US)  
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LEGAL REPRESENTATIVE:

Woodward, John Calvin et al (37981), Venner Shipley & Co. 20 Little  
Britain, London EC1A 7DH, (GB)

PATENT (CC, No, Kind, Date): EP 542911 A1 930526 (Basic)  
EP 542911 A1 960626  
EP 542911 B1 991124  
WO 9202892 920220

APPLICATION (CC, No, Date): EP 91916528 910808; WO 91US5642 910808

PRIORITY (CC, No, Date): US 566083 900810

DESIGNATED STATES: AT; BE; CH; DE; DK; ES; FR; GB; GR; IT; LI; LU; NL; SE

RELATED DIVISIONAL NUMBER(S) - PN (AN):

EP 942295 (EP 99201028)

INTERNATIONAL PATENT CLASS: G01N-023/04; G01V-005/00; G06T-005/50;  
G06T-007/00

NOTE:

No A-document published by EPO

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	9947	3366
CLAIMS B	(German)	9947	3165
CLAIMS B	(French)	9947	3709
SPEC B	(English)	9947	13424
Total word count - document A			0
Total word count - document B			23664
Total word count - documents A + B			23664

...SPECIFICATION time to process each CT scan and so is not suitable to be solely responsible for detecting and indicating suspect specific materials on-line in **real time** . Coupling a CT scanner 1002 with a dual energy x-ray inspection device 1000, as shown schematically in Fig. 18a, increases the algorithmic efficiency of...

...in the dual energy x-ray inspector device 1004 can be deployed to also perform CT scanning when required. In such embodiments 1004, a somewhat **less** accurate **dual energy x - ray** system can be tolerated, for example one using coarser grained pixels, because of the additional CT scanning capabilities.

Other embodiments are within scope of the...

10/3,K/5 (Item 5 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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00527649 \*\*Image available\*\*

**MULTI-DENSITY AND MULTI-ATOMIC NUMBER DETECTOR MEDIA FOR APPLICATIONS**  
**DETECTEURS POUR MILIEUX DE DENSITES ET NOMBRES ATOMIQUES MULTIPLES POUR DES APPLICATIONS**

Patent Applicant/Assignee:

THE UNIVERSITY OF AKRON,

Inventor(s):

GIAKOS George C,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9959001 A1 19991118

Application: WO 99US9475 19990429 (PCT/WO US9909475)

Priority Application: US 9878991 19980514

Designated States: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES  
FI GB GE GH GM HR HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD  
MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ  
VN YU ZW GH GM KE LS MW SD SL SZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE  
CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN  
GW ML MR NE SN TD TG

Publication Language: English

Fulltext Word Count: 7325

Fulltext Availability:

Detailed Description

Detailed Description

... energy, and the subscripts c and p, indicate Compton and photoelectric interactions, respectively. Subtraction techniques of the two images can be utilized to enhance the **image** contrast and **dynamic** range in single energy **imaging** .

For a **dual energy** multi-detector, logarithmic extractions may be applied to the signals generated by each media whereupon the difference between the two signals generates the desired image...

10/3,K/6 (Item 6 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
(c) 2004 WIPO/Univentio. All rts. reserv.

00388764 \*\*Image available\*\*

**MULTIMEDIA DETECTORS FOR MEDICAL IMAGING**  
**DETECTEURS MULTIMEDIAS POUR IMAGERIE MEDICALE**

Patent Applicant/Assignee:

UNIVERSITY OF AKRON THE,

GIAKOS George C,

CHOWDHURY Samir,

Inventor(s):

GIAKOS George C,

CHOWDHURY Samir,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9729507 A1 19970814

Application: WO 97US2042 19970207 (PCT/WO US9702042)

Priority Application: US 9611499 19960212

Designated States: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES  
FI GB GE HU IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW  
MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG US UZ VN KE LS MW

SD SZ UG AM AZ BY KG KZ MD RU TJ TM AT BE CH DE DK ES FI FR GB GR IE IT  
LU MC NL PT SE BF BJ CF CG CI CM GA GN ML MR NE SN TD TG

Publication Language: English

Fulltext Word Count: 8949

Fulltext Availability:

Detailed Description

Detailed Description

... the following three zones: a front zone 62, an inactive neutral zone 66 and a back zone 64. The front zone 62 produces the digital low - energy image and the back segment 64 produces the digital highenergy image. The purpose of the inactive neutral zone 66 is to  
, SUBSTITUTE SHEET (R ULE 26)  
harden the x-rays and thereby increase the energy separation between the low and high energy images. A prefilter material 72 with an appropriately chosen k-edge is placed adjacent to the x-ray tube 42 so as to produce a bimodal x - ray spectrum entering the object or phantom 74. The dual - energy microstrip detector 70 comprises an aluminum x - ray window 76 which encloses the gas medium 34. The detected signals are amplified, filtered, and then displayed on a digital real - time oscilloscope.

Quantitative Autoradiography

Several biological measurement and detection techniques in nuclear medicine depend on the quantitative evaluation of radiolabelled substances in two dimensional separated media...

?

12/3,K/1 (Item 1 from file: 349)  
DIALOG(R) File 349:PCT FULLTEXT  
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00579194 \*\*Image available\*\*

**APPARATUS AND METHOD FOR DETECTING CONCEALED OBJECTS IN COMPUTED TOMOGRAPHY  
DATA**

**APPAREIL ET PROCEDE DE DETECTION D'OBJETS DISSIMULES DANS DES DONNEES DE  
TOMODENSITOMETRIE**

Patent Applicant/Assignee:

ANALOGIC CORPORATION,

Inventor(s):

SIMANOVSKY Sergey,  
BECHWATI Ibrahim M,  
HIRAOGLU Muzaffer,  
CRAWFORD Carl R,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200042567 A1 20000720 (WO 0042567)

Application: WO 99US30878 19991223 (PCT/WO US9930878)

Priority Application: US 99228380 19990112

Designated States: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE  
ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT  
LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT  
UA UG UZ VN YU ZA ZW GH GM KE LS MW SD SL SZ TZ UG ZW AM AZ BY KG KZ MD  
RU TJ TM AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF  
CG CI CM GA GN GW ML MR NE SN TD TG

Publication Language: English

Fulltext Word Count: 13457

Main International Patent Class: G06K-009/00

Fulltext Availability:

Detailed Description

**Detailed Description**

... the necessary signals for operating and controlling the system 120.

The computer system can also 2 5 include a monitor for displaying information including generated images. The X - ray tube control system 136 can be a dual - energy X - ray tube control system such as the dual - energy X - ray tube control system described in the copending U.S. Patent Application Serial No.

08/671 .202 entitled, "Improved Dual Energy Power Supply," (Attorney Docket No. ANA094), which is assigned to the same assignee as the present application and which is 3 0 incorporated herein in its entirety by reference. Dual energy X - ray techniques for energysselective reconstruction of X - ray CT images are particularly useful in indicating a -IOMaterial's atomic number in addition to indicating the material's density, although it is not intended that the...sine wave. This supply can also provide X-ray filament power. The supply current can be held approximately constant for both voltages. 3 0 The dual - energy X - rays strike the baggage, and some portion of the X - rays pass through and strike the detector assembly 130. The detector assembly 130 performs an analog conversion from X-ray to visible photons and then to ...

12/3,K/2 (Item 2 from file: 349)  
DIALOG(R) File 349:PCT FULLTEXT  
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00579193     \*\*Image available\*\*

**APPARATUS AND METHOD FOR PROCESSING OBJECTS IN COMPUTED TOMOGRAPHY DATA  
USING OBJECT PROJECTIONS**

**APPAREIL DE TOMODENSITOMETRIE ET PROCEDE DE TRAITEMENT D'OBJETS AU MOYEN DE  
PROJECTIONS D'OBJETS**

Patent Applicant/Assignee:

ANALOGIC CORPORATION,

Inventor(s):

CRAWFORD Carl R,  
BECHWATI Ibrahim M,  
SIMANOVSKY Sergey,  
HIRAOGLU Muzaffer,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200042566 A1 20000720 (WO 0042566)

Application: WO 99US30844 19991223 (PCT/WO US9930844)

Priority Application: US 99228379 19990112

Designated States: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE  
ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT  
LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT  
UA UG UZ VN YU ZA ZW GH GM KE LS MW SD SL SZ TZ UG ZW AM AZ BY KG KZ MD  
RU TJ TZ AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF  
CG CI CM GA GN GW ML MR NE SN TD TG

Publication Language: English

Fulltext Word Count: 10278

Main International Patent Class: G06K-009/00

Fulltext Availability:

Detailed Description

Detailed Description

... for generating the necessary signals for operating and controlling the system 120. The computer system can also include a monitor for displaying information including generated images. The X-ray tube control system 136 can be a dual-energy X-ray tube control system such as the dual-energy X-ray tube control system described in U.S.

Patent No. 5,661,774, issued on August 26, 1997, entitled, "Dual Energy Power Supply," 2 0 (Attorney Docket No. ANA-094), which is assigned to the same assignee as the present application and which is incorporated herein in its entirety by reference. Dual energy X-ray techniques for energy-selective reconstruction of X-ray CT images are particularly useful in indicating a material's atomic number in addition to indicating the material's density, although it is not intended...of a sine wave. This supply can also provide X-ray filament power. The supply current can be held approximately constant for both voltages.

The dual-energy X-rays strike the baggage, and some portion of the X-rays pass 2 0 through and strike the detector assembly 130. The detector assembly 130 performs an analog conversion from X-ray to visible photons and...

12/3,K/3     (Item 3 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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00549760     \*\*Image available\*\*

**METHOD AND SYSTEM FOR THE COMPUTERIZED ANALYSIS OF BONE MASS AND STRUCTURE  
PROCEDE ET SYSTEME D'ANALYSE INFORMATISES DE LA MASSE ET DE LA STRUCTURE DE**

L'OS

Patent Applicant/Assignee:

ARCH DEVELOPMENT CORPORATION,

Inventor(s):

JIANG Chunsheng,

CHINANDER Michael R,

GIGER Maryellen L,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200013133 A1 20000309 (WO 0013133)

Application: WO 99US18825 19990827 (PCT/WO US9918825)

Priority Application: US 98141535 19980828

Designated States: AU CA JP AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL  
PT SE

Publication Language: English

Fulltext Word Count: 19330

Main International Patent Class: G06K-009/00

Fulltext Availability:

Detailed Description

Detailed Description

... Grampp et al., 1997 [71].

The standard technique for noninvasive evaluation of bone mineral status is bone densitometry. Among various techniques for bone densitometric measurement, **dual energy X - ray absorptiometry (DXA)** is relatively inexpensive, low in radiation dose (< 5 @ISv effective dose equivalent), and of high accuracy (z 1%) and precision (z 1%) (Sartoris...radiographic medical images, the concept can be expanded to analysis in other images of the human body.

#### APPENDIX

#### References.

[11 Adams, J.E. Single and **dual energy X - ray absorptiometry**. Eur. Radiol. 7(suppl.

2):S20-S31; 1997.

[2] Beck, T.J., Ruff, C.B., Warden, K.E., Scott, W.W. and Rao, G... differences in bone mineral density more apparent than real? J. Clin. Endocrinol. Metab. 83:14141419; 1998.

Sieranen, H., Kannus, P., Oja, P. and Vuori, I. **Dual - energy X - ray absorptiometry** is also an accurate and precise method to measure the dimensions of human long bones.

Calcif. Tissue Int. 54: 101-105; 1994.

[181 R...

12/3,K/4 (Item 4 from file: 349)

DIALOG(R) File 349:PCT FULLTEXT

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00542305 \*\*Image available\*\*

COMPUTERIZED DETECTION OF LUNG NODULES USING ENERGY-SUBTRACTED SOFT-TISSUE  
AND STANDARD CHEST IMAGES

DETECTION PAR ORDINATEUR DE NODULES PULMONAIRES AU MOYEN D'IMAGES DE TISSUS

MOUS A SOUSTRACTION D'ENERGIE ET D'IMAGES THORACIQUES CLASSIQUES  
Patent Applicant/Assignee:  
ARCH DEVELOPMENT CORPORATION,  
Inventor(s):  
XU Xin-Wei,  
DOI Kunio,  
MACMAHON Heber,  
Patent and Priority Information (Country, Number, Date):  
Patent: WO 200005678 A1 20000203 (WO 0005678)  
Application: WO 99US14159 19990721 (PCT/WO US9914159)  
Priority Application: US 98121719 19980724  
Designated States: AU CA JP AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL  
PT SE  
Publication Language: English  
Fulltext Word Count: 5428

Main International Patent Class: G06K-009/00  
Fulltext Availability:  
Detailed Description

Detailed Description  
... Energy Subtraction Chest Radiography with an Iterative Noise-Reduction  
Algorithm," Radiology, 194:407 (1995).

[81 S. Kido, J. Ikezoe, H. Naito, et al, "Single-Exposure **Dual - Energy**  
Chest **Images** with Computed Radiography: Evaluation with Simulated  
Pulmonary Nodules," Invest.

Radiol., 28:482 (1993).

[9] D.L. Ergun, C.A. Mistretta, D.E. Brown, R.T...

...P. Naidich, "Single-Exposure Dual-Energy Computed Radiography: Improved  
Detection and Processing," Radiology, 174:243 (1990).

110] T. Ishigaki, S. Sakuma, M. Ikeda, "One-Shot **Dual - Energy**  
Subtraction Chest **Imaging** with Computed Radiography: Clinical  
Evaluation of Film **Images**," Radiology, 168:67 (1988).

[11] R.G. Fraser, N.M. Hickey, L.T. Nikalson, E.A. Sabbagh, R.F. Luna,  
C.B.

Alexander, C.A...

12/3,K/5 (Item 5 from file: 349)  
DIALOG(R) File 349:PCT FULLTEXT  
(c) 2004 WIPO/Univentio. All rts. reserv.

00510324 \*\*Image available\*\*  
COMPUTED TOMOGRAPHY APPARATUS AND METHOD FOR CLASSIFYING OBJECTS  
APPAREIL DE TOMODENSITOMETRIE ET PROCEDE DE CLASSEMENT D'OBJETS

Patent Applicant/Assignee:  
ANALOGIC CORPORATION,  
Inventor(s):  
CRAWFORD Carl R,  
HIRAOGLU Muzaffer,  
BECHWATI Ibrahim M,  
SIMANOVSKY Sergey,  
Patent and Priority Information (Country, Number, Date):  
Patent: WO 9941676 A1 19990819

Application: WO 99US1514 19990125 (PCT/WO US9901514)  
Priority Application: US 9822189 19980211; US 9822164 19980211; US  
9822062 19980211; US 9822064 19980211; US 9821889 19980211; US 9821781  
19980211; US 9822165 19980211; US 9822354 19980211; US 9822060 19980211  
; US 9821782 19980211; US 9822059 19980211; US 9822204 19980211  
Designated States: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES  
FI GB GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV  
MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG  
UZ VN YU ZW GH GM KE LS MW SD SZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE  
CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN  
GW ML MR NE SN TD TG  
Publication Language: English  
Fulltext Word Count: 24856

...International Patent Class: G06K-009/00  
Fulltext Availability:  
Detailed Description

#### Detailed Description

... result in greater operator fatigue, and fatigue as well as any  
distractions can result in a suspected bag passing through the system  
undetected.

Techniques using **dual energy X - ray** sources are known for  
providing  
additional information about a material's chemical characteristics,  
beyond solely a  
density measurement. Techniques using **dual energy X - ray** sources  
involve  
measuring the **X - ray** absorption characteristics of a material for two  
different  
energy levels of X-rays. These measurements provide an indication of the  
material's atomic number in addition to an indication of the material's  
density.

**Dual energy X - ray** techniques for energy-selective reconstruction  
of **X - ray CT**  
images are described, for example, in Alvarez, et al., "Energy-selective  
Reconstructions in X-ray Computerized Tomography", Phys. Med. Biol. 1976,  
Vol. 21, No...

...presence of explosives in baggage.

Explosive materials are generally characterized by a known range of  
atomic numbers and are therefore amenable to detection by such **dual  
energy X - ray** sources. One such **dual energy** source is described  
in copending U.S. Patent  
Application Serial No. 08/671,202, entitled "Improved Dual Energy Power  
Supply, " (Attorney Docket No. ANA-094...for generating the necessary  
signals for operating and controlling the system 120. The computer system  
can also include a monitor for displaying information including generated  
**images** . The **X - ray** tube control system 136 can be a **dual - energy  
X - ray** tube control system such as the **dual - energy X - ray** tube  
control system described in the copending U.S. Patent  
Application Serial No. 08/671,202 entitled, "Improved Dual Energy Power  
Supply, " (Attorney Docket No. ANA-094), which is assigned to the same  
assignee as the present application and which is incorporated herein in  
its entirety by reference. **Dual energy X - ray** techniques for  
energy-selective reconstruction of **Xray CT images** are particularly  
useful in indicating a material's atomic number in addition to indicating

the material's density, although it is not intended that the...of a sine wave. This supply can also provide X-ray filament power. The supply current can be held approximately constant for both voltages.

The dual - energy X - rays strike the baggage, and some portion of the X - rays pass through and strike the detector assembly 130. The detector assembly 130 performs an analog conversion from X-ray to visible photons and then to...

?

File 9:Business & Industry(R) Jul/1994-2004/May 04  
     (c) 2004 The Gale Group  
 File 15:ABI/Inform(R) 1971-2004/May 04  
     (c) 2004 ProQuest Info&Learning  
 File 16:Gale Group PROMT(R) 1990-2004/May 05  
     (c) 2004 The Gale Group  
 File 20:Dialog Global Reporter 1997-2004/May 05  
     (c) 2004 The Dialog Corp.  
 File 47:Gale Group Magazine DB(TM) 1959-2004/May 05  
     (c) 2004 The Gale group  
 File 75:TGG Management Contents(R) 86-2004/Apr W4  
     (c) 2004 The Gale Group  
 File 80:TGG Aerospace/Def.Mkts(R) 1986-2004/May 05  
     (c) 2004 The Gale Group  
 File 88:Gale Group Business A.R.T.S. 1976-2004/May 04  
     (c) 2004 The Gale Group  
 File 98:General Sci Abs/Full-Text 1984-2004/May  
     (c) 2004 The HW Wilson Co.  
 File 112:UBM Industry News 1998-2004/Jan 27  
     (c) 2004 United Business Media  
 File 141:Readers Guide 1983-2004/May  
     (c) 2004 The HW Wilson Co  
 File 148:Gale Group Trade & Industry DB 1976-2004/May 05  
     (c)2004 The Gale Group  
 File 160:Gale Group PROMT(R) 1972-1989  
     (c) 1999 The Gale Group  
 File 275:Gale Group Computer DB(TM) 1983-2004/May 05  
     (c) 2004 The Gale Group  
 File 264:DIALOG Defense Newsletters 1989-2004/May 05  
     (c) 2004 The Dialog Corp.  
 File 484:Periodical Abs Plustext 1986-2004/Apr W4  
     (c) 2004 ProQuest  
 File 553:Wilson Bus. Abs. FullText 1982-2004/Apr  
     (c) 2004 The HW Wilson Co  
 File 570:Gale Group MARS(R) 1984-2004/May 04  
     (c) 2004 The Gale Group  
 File 608:KR/T Bus.News. 1992-2004/May 05  
     (c)2004 Knight Ridder/Tribune Bus News  
 File 620:EIU:Viewswire 2004/May 04  
     (c) 2004 Economist Intelligence Unit  
 File 613:PR Newswire 1999-2004/May 05  
     (c) 2004 PR Newswire Association Inc  
 File 621:Gale Group New Prod.Annou.(R) 1985-2004/May 04  
     (c) 2004 The Gale Group  
 File 623:Business Week 1985-2004/May 03  
     (c) 2004 The McGraw-Hill Companies Inc  
 File 624:McGraw-Hill Publications 1985-2004/May 04  
     (c) 2004 McGraw-Hill Co. Inc  
 File 634:San Jose Mercury Jun 1985-2004/May 04  
     (c) 2004 San Jose Mercury News  
 File 635:Business Dateline(R) 1985-2004/May 04  
     (c) 2004 ProQuest Info&Learning  
 File 636:Gale Group Newsletter DB(TM) 1987-2004/May 05  
     (c) 2004 The Gale Group  
 File 647:CMP Computer Fulltext 1988-2004/Apr W4  
     (c) 2004 CMP Media, LLC  
 File 674:Computer News Fulltext 1989-2004/Apr W4  
     (c) 2004 IDG Communications  
 File 810:Business Wire 1986-1999/Feb 28  
     (c) 1999 Business Wire  
 File 813:PR Newswire 1987-1999/Apr 30

(c) 1999 PR Newswire Association Inc

Set	Items	Description
S1	3173	DUAL()ENERGY
S2	2709	S1(10N) (IMAGE? OR IMAGING OR PICTURE? ? OR GRAPHIC? ? OR P- HOTOGRAPH? OR XRAY? ? OR X() (RAY OR RAYS) OR MASKING OR MASK - OR MASKS)
S3	8	CHARACTERISTIC()MASK? ?
S4	106	(GRADIENT OR SLOPE OR LOCALIZATION) ()MASK? ? OR CANCEL? ()P- ARAMET? OR STRUCTURE()CANCEL?
S5	205181	(LOW OR LOWER OR LESS OR LESSER OR SMALL? OR DECREAS? OR R- EDUC?) (2N)ENERGY
S6	0	S1(S) (S3 OR S4)
S7	34	S2(S)S5
S8	1	(REALTIME OR REAL?(W)TIME OR DYNAMIC? OR SPONTANEOUS? OR A- UTOMATIC?) (S)S7
S9	1958	AU=(AVINASH, G? OR AVINASH G? OR SABOL, J? OR SABOL J? OR - NICOLAS, F? OR NICOLAS F?) OR CO=(GE OR GENERAL()ELECTRIC)
S10	0	S9 AND S2
S11	0	S9 AND S1
S12	0	(S3 OR S4) (S)S5

8/3,K/1 (Item 1 from file: 624)  
DIALOG(R) File 624: McGraw-Hill Publications  
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00797754

**Federal Support Bolsters Next-Generation Technologies**

Aviation Week & Space Technology October 7, 1996; Pg 44; Vol. 145, No. 15

Journal Code: AW ISSN: 0005-2175

Section Heading: AIRPORT SECURITY

Dateline: LOS ANGELES

Word Count: 1,358 \*Full text available in Formats 5, 7 and 9\*

BYLINE:

MICHAEL A. DORNHEIM

TEXT:

... later, ``Lyle O. Malotky, the FAA scientific adviser for civil aviation security, said. ``We think it can work.''

The FAA also is supporting improvements to **dual - energy** and backscatter **X - ray** systems that are in operational use for checked baggage. For **low - energy** X-ray systems used for carry-on items, research is being done to offer improved depiction of edges, better **dynamic** range, and **dual - energy X - rays** to measure atomic number.

Radio frequency stimulation of atomic nuclei, or quadrupole resonance, is being pushed closer to the marketplace by federal funds. The FAA...

?

File 344:Chinese Patents Abs Aug 1985-2004/Mar  
(c) 2004 European Patent Office  
File 347:JAPIO Nov 1976-2003/Dec(Updated 040402)  
(c) 2004 JPO & JAPIO  
File 350:Derwent WPIX 1963-2004/UD,UM &UP=200427  
(c) 2004 Thomson Derwent

Set	Items	Description
S1	175	DUAL()ENERGY
S2	110	S1(10N) (IMAGE? OR IMAGING OR PICTURE? ? OR GRAPHIC? ? OR PHOTOGRAPH? OR XRAY? ? OR X() (RAY OR RAYS) OR MASKING OR MASK - OR MASKS)
S3	7	CHARACTERISTIC()MASK? ?
S4	42	(GRADIENT OR SLOPE OR LOCALIZATION) ()MASK? ? OR CANCEL? ()PARAMET? OR STRUCTURE()CANCEL?
S5	3	S2 AND (S3 OR S4)
S6	3	IDPAT (sorted in duplicate/non-duplicate order)
S7	2	IDPAT (primary/non-duplicate records only)
S8	68963	(LOW OR LOWER OR LESS OR LESSER OR SMALL? OR DECREAS? OR REDUC?) (2N)ENERGY
S9	2098771	ANATOMY OR BODY OR BODIES OR TISSUE OR ORGAN? ? OR BONE? ?
S10	80	(S8 OR S9) AND S2
S11	21	S8 AND S2
S12	21	IDPAT (sorted in duplicate/non-duplicate order)
S13	20	IDPAT (primary/non-duplicate records only)
S14	18	S13 NOT S7
S15	2	(REALTIME OR REAL? (W)TIME OR DYNAMIC? OR SPONTANEOUS? OR AUTOMATIC?) AND S14
S16	16	S14 NOT S15
S17	9	S16 AND S9
S18	7	S16 NOT S17
S19	4	S2 AND IC=G06K-009/00
S20	4	IDPAT (sorted in duplicate/non-duplicate order)
S21	4	IDPAT (primary/non-duplicate records only)
S22	2	S21 NOT (S7 OR S12)

7/3,K/1 (Item 1 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
(c) 2004 Thomson Derwent. All rts. reserv.

015215366 \*\*Image available\*\*  
WPI Acc No: 2003-275903/200327  
XRPX Acc No: N03-219143

Automatic dual energy decomposition method for medical X - ray  
imaging , involves obtaining structure canceled image of internal  
anatomy according to cancellation equation using evaluated cancellation  
parameters

Patent Assignee: GE MEDICAL SYSTEMS GLOBAL TECHNOLOGY CO (GENE ); AVINASH  
G B (AVIN-I); NICOLAS F S (NICO-I); SABOL J M (SABO-I)

Inventor: AVINASH G B; NICOLAS F S; SABOL J M

Number of Countries: 003 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20020186872	A1	20021212	US 2001681611	A	20010508	200327 B
JP 2003037778	A	20030207	JP 2002132212	A	20020508	200327
FR 2827059	A1	20030110	FR 20025538	A	20020503	200327

Priority Applications (No Type Date): US 2001681611 A 20010508

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20020186872	A1		12	G06K-009/00	
JP 2003037778	A		13	H04N-005/325	
FR 2827059	A1			G06T-005/00	

Automatic dual energy decomposition method for medical X - ray  
imaging , involves obtaining structure canceled image of internal  
anatomy according to cancellation equation using evaluated cancellation  
parameters

Abstract (Basic):

... High and low energy level images of internal anatomy, are  
obtained. A **characteristic mask** is computed using the low energy  
level image. A **cancellation parameter** is evaluated against the  
mask, based on which another **cancellation parameter** is computed. A  
**structure canceled image** is obtained from both the images, based on  
a cancellation equation using any one **cancellation parameter** .

... For automatic **dual energy** decomposition in tissue specific  
medical diagnostic **X - ray imaging** .

...Improves the performance of image decomposition. Input from the operator  
is not necessary and the time required to complete the calculations is  
reduced, by utilizing **cancellation parameter** for determining the  
**structure canceled image**. The technique is not subject to possible  
operator biases, hence the calculated **cancellation parameters**  
provide the best cancellation of the chosen structure

7/3,K/2 (Item 2 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
(c) 2004 Thomson Derwent. All rts. reserv.

014394363 \*\*Image available\*\*  
WPI Acc No: 2002-215066/200227  
XRPX Acc No: N02-164653

Dual energy decomposition cancellation parameter determination method for medical diagnostic X - ray imaging , involves varying parameter iteratively, obtaining canceled image and evaluating cancellation variance

Patent Assignee: GENERAL ELECTRIC CO (GENE )

Inventor: AVINASH G B; KUMP K S; NICOLAS F S; ZHAO J

Number of Countries: 022 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 6343111	B1	20020129	US 2000657033	A	20000907	200227 B
WO 200219909	A1	20020314	WO 2001US25090	A	20010810	200227
EP 1317209	A1	20030611	EP 2001963888	A	20010810	200339
			WO 2001US25090	A	20010810	

Priority Applications (No Type Date): US 2000657033 A 20000907

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

US 6343111 B1 7 H05G-001/08

WO 200219909 A1 E A61B-006/03

Designated States (National): JP

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU

MC NL PT SE TR

EP 1317209 A1 E A61B-006/03 Based on patent WO 200219909

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI

LU MC NL PT SE TR

Dual energy decomposition cancellation parameter determination method for medical diagnostic X - ray imaging , involves varying parameter iteratively, obtaining canceled image and evaluating cancellation variance

Abstract (Basic):

... A cancellation parameter is iteratively varied, and the high and low energy images are combined based on the parameter. The cancellation variance of the canceled resultant image is...

... b) Computer program product for structure cancellation

...

...For determining cancellation parameter iteratively for dual energy decomposition in bone or tissue specific medical X - ray imaging and other applications...

...The cancellation parameter is determined automatically without significant trial and error delays, or operator biases

?

15/3,K/1 (Item 1 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
(c) 2004 Thomson Derwent. All rts. reserv.

014394145 \*\*Image available\*\*  
WPI Acc No: 2002-214848/200227  
XRAM Acc No: C02-065632  
XRPX Acc No: N02-164472

Modular body fat phantom for calibrating fat percentage measurements made by dual energy x - ray attenuation device, includes two calibrated plates made of different bases materials

Patent Assignee: BIO IMAGING TECHNOLOGIES INC (BIOI-N)

Inventor: MILLER C G; NORD R H

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 6315447	B1	20011113	US 98113491	P	19981222	200227 B
			US 99467318	A	19991220	

Priority Applications (No Type Date): US 98113491 P 19981222; US 99467318 A 19991220

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 6315447	B1		5	G01D-018/00	Provisional application US 98113491

Modular body fat phantom for calibrating fat percentage measurements made by dual energy x - ray attenuation device, includes two calibrated plates made of different bases materials

Abstract (Basic):

... A modular body fat phantom consists of a first calibrated plate made of a first basis material having high and low energy x-ray attenuation values, and a second calibrated plate made of a second basis material having different high and low energy x-ray attenuation values.

... includes (a) a first calibrated plate (12) made of a first basis material having a first high energy x-ray attenuation value and a first low energy x-ray attenuation value; and (b) a second calibrated plate (12) made of a second basis material having a second high energy x-ray attenuation value and a second low energy x-ray attenuation value. The second set of high and low energy x-ray attenuation values is different from the first set. The calibrated plates may be stacked together to define a first known simulated body fat...

...The inventive body fat phantom is used for calibrating fat percentage measurements made by a dual energy x - ray attenuation measurement device...

Technology Focus:

... Device: The body fat phantom also includes a third calibrated plate (12) made of a third basis material having a third set of high and low energy x-ray attenuation values different from both the first and second sets of high and low energy x-ray attenuation values. The first, second, and third calibrated plates may be stacked together to define a second known simulated body fat composition. The ...

...fat phantom also includes a high density end cap positionable proximate a first end of the first, second, and third calibrated plates for triggering an automatic region of interest detection in the measurement device. Preferred Materials: The first basis material is

acrylic. The second basis material is vinyl or a vinyl...

15/3,K/2 (Item 2 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
(c) 2004 Thomson Derwent. All rts. reserv.

008953007 \*\*Image available\*\*  
WPI Acc No: 1992-080276/199210  
XRPX Acc No: N92-060119

Baggage inspection method with dual energy X - ray discrimination -  
using exposure to dual energise allows processing of comparative  
attenuation data to identify presence of material esp. explosives  
Patent Assignee: VIVID TECHNOLOGIES INC (VIVI-N); VIVID TECHN INC (VIVI-N);  
VIVID TECHNOLOGIES (VIVI-N)

Inventor: KRUG K D; STEIN J A; TAYLOR A L  
Number of Countries: 037 Number of Patents: 011  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9202892	A	19920220				199210	B
AU 9185036	A	19920302	AU 9185036	A	19910808	199224	
			WO 91US5642	A	19910808		
EP 542911	A1	19930526	EP 91916528	A	19910808	199321	
			WO 91US5642	A	19910808		
US 5319547	A	19940607	US 90566083	A	19900810	199422	
JP 6504838	W	19940602	JP 91515089	A	19910808	199426	
			WO 91US5642	A	19910808		
US 5490218	A	19960206	US 90566083	A	19900810	199612	
			US 93165737	A	19931210		
EP 542911	A4	19960626	EP 91916528	A	19910000	199644	
US 5838758	A	19981117	US 90566083	A	19900810	199902	
			US 93165737	A	19931210		
			US 95403277	A	19950313		
EP 942295	A2	19990915	EP 91916528	A	19910808	199942	
			EP 99201028	A	19910808		
EP 542911	B1	19991124	EP 91916528	A	19910808	199954	
			WO 91US5642	A	19910808		
			EP 99201028	A	19910808		
DE 69131799	E	19991230	DE 631799	A	19910808	200007	
			EP 91916528	A	19910808		
			WO 91US5642	A	19910808		

Priority Applications (No Type Date): US 90566083 A 19900810; US 93165737 A  
19931210; US 95403277 A 19950313

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9202892	A		115		
					Designated States (National): AU BB BG BR CA CS FI HU JP KP KR LK MC MG MN MW NO PL RO SD SU
					Designated States (Regional): AT BE CH DE DK ES FR GB GR IT LU NL OA SE
DE 69131799	E			G01N-023/04	Based on patent EP 542911 Based on patent WO 9202892
AU 9185036	A			G06F-015/52	Based on patent WO 9202892
EP 542911	A1	E	115	G06F-015/52	Based on patent WO 9202892
					Designated States (Regional): AT BE CH DE DK ES FR GB GR IT LI LU NL SE
US 5319547	A		50	G06F-015/00	
JP 6504838	W			G01V-005/00	Based on patent WO 9202892
US 5490218	A		50	G01N-023/02	Cont of application US 90566083 Cont of patent US 5319547
US 5838758	A			G01N-023/06	Cont of application US 90566083 Cont of application US 93165737

Cont of patent US 5319547  
 Cont of patent US 5490218  
 EP 942295      A2 E      G01V-005/00      Div ex application EP 91916528  
    Div ex patent EP 542911  
 Designated States (Regional): DE FR GB  
 EP 542911      B1 E      G01N-023/04      Related to application EP 99201028  
    Related to patent EP 942295  
    Based on patent WO 9202892  
 Designated States (Regional): AT BE CH DE DK ES FR GB GR IT LI LU NL SE

**Baggage inspection method with dual energy X - ray discrimination**  
 ...

- ...Abstract (Basic): The device detects a specific material that may be present in an ensemble of objects. An area of the ensemble is exposed to **X - ray** energies to produce **dual energy image** information, thereby making use of characteristics difference in photoelectric and Compton effect scattering...
  - ...Abstract (Equivalent): ray radiation of two different energy bands. A detector, responsive to the source, is adapted to detect radiation passing through the ensemble and to produce **dual energy areal image** information of the ensemble. A computer is adapted to process such dual energy information based on differences in attenuation between subareas of the exposed area...
  - ...x-rays at the higher energy band at the test subarea and LT is a function of the attenuation of the x-rays at the **lower energy** band at the test subarea. The computer also computes for a subarea nearby the test subarea the values (HB, LB) where HB is a function...
  - ...x-rays at the higher energy band at the nearby subarea and LB is a function of the attenuation of the x-rays at the **lower energy** band at the nearby subarea. The values (HT, LT) and (HB, LB) are used in determining the presence of the specific material...
  - ... **automatically** indicating the presence of said target object while said ensemble of objects progresses on said conveyor
- ?

17/3,K/1 (Item 1 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
(c) 2004 Thomson Derwent. All rts. reserv.

016042648 \*\*Image available\*\*  
WPI Acc No: 2004-200499/200419  
XRPX Acc No: N04-159120

Digital x-ray imaging system for mammography, has pixilated flat panel digital x-ray detector separated by space accommodating body, from x-rays source that is switchable between different energy levels

Patent Assignee: GENERAL ELECTRIC CO (GENE )  
Inventor: HIBBSOPSAHL-ONG B; HOPPLE M R; ZHAO J  
Number of Countries: 001 Number of Patents: 001  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 6683934	B1	20040127	US 2000586898	A	20000605	200419 B

Priority Applications (No Type Date): US 2000586898 A 20000605

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 6683934	B1	16	A61B-006/03	

Digital x-ray imaging system for mammography, has pixilated flat panel digital x-ray detector separated by space accommodating body, from x-rays source that is switchable between different energy levels

Abstract (Basic):

... The system has a pixilated flat panel digital x-ray detector separated by space accommodating a body, from x-rays source that is switchable between different energy levels. A computer controls the source to radiate the body with both the levels and produce corresponding x-ray images on the detector, respectively and process the images to produce a soft tissue image and bone /calcification image.

... The system has an increased separation of high and low x-ray energy levels, thereby yielding an efficient dual energy x-ray imaging.

...Title Terms: BODY ;

17/3,K/2 (Item 2 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
(c) 2004 Thomson Derwent. All rts. reserv.

015939313 \*\*Image available\*\*  
WPI Acc No: 2004-097154/200410  
Related WPI Acc No: 2004-200928  
XRPX Acc No: N04-077347

Computer aided X-ray image processing method for bone fracture diagnosis, involves extracting feature measures from region of interest defined within particular image of dual or multiple energy image set

Patent Assignee: AVINASH G B (AVIN-I); JABRI K N (JABR-I); RADER A E (RADE-I); SABOL J M (SABO-I); THOMAS C H (THOM-I); UPPALURI R (UPPA-I)  
Inventor: AVINASH G B; JABRI K N; RADER A E; SABOL J M; THOMAS C H; UPPALURI R

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
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US 20030215120 A1 20031120 US 200263819 A 20020515 200410 B  
US 200265854 A 20021126

Priority Applications (No Type Date): US 200265854 A 20021126; US 200263819  
A 20020515

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes  
US 20030215120 A1 31 G06K-009/00 CIP of application US 200263819

**Computer aided X-ray image processing method for bone fracture diagnosis, involves extracting feature measures from region of interest defined within particular image of dual or multiple energy image set**

Abstract (Basic):

... The method involves employing a data source including dual or multiple energy image set including high and low energy images, bone image and soft tissue image. A region of interest (ROI) is defined within an image from the image set, so that feature measures are extracted from the ROI and...

... 1) system for computer aided processing of dual energy images ;  
(...)

...3). method of detecting bone fractures, calcifications or metastases; and...

...of image sets acquired from X-ray radiographic imaging, X-ray computed tomography and X-ray tomosynthesis used in detection and diagnosis of calcification, metastases, bone fractures, rib fractures and lung diseases...

...raw soft tissue image (41...

...raw bone image (42...

...processes soft tissue image (46...

...processed bone image (47

...Title Terms: BONE ;

17/3,K/3 (Item 3 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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013697302 \*\*Image available\*\*  
WPI Acc No: 2001-181526/200118  
XRPX Acc No: N01-129444

**Digital mammography involves separating single human breast X-ray image into physical component images by using X-rays with dual energy levels**

Patent Assignee: ADVANCED OPTICAL TECHNOLOGIES INC (ADOP-N)

Inventor: CHAO Y

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 6173034	B1	20010109	US 99235912	A	19990125	200118 B

Priority Applications (No Type Date): US 99235912 A 19990125

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes  
US 6173034 B1 14 A61B-006/04

Digital mammography involves separating single human breast X - ray image into physical component images by using X - rays with dual energy levels

Abstract (Basic):

... Numerical relations for high and low energy level X-rays of fat and lean tissue as well as the microcalcification material and soft tissue which is the combination of lean and fat tissue, are obtained. High resolution images due to primary and scatter X-rays are acquired based on which scatter X-ray images, fat tissue image, lean tissue image, microcalcification image and soft tissue images are obtained.

... only the passed X-rays and to prevent the blocked portion of X-rays. A pair of numerical relations for front detector at high and low energy for microcalcification (c) and soft tissue (s) is given by  $c=c(DH,DL)$  and  $s=s(DH,DL)$ . For lean tissue and fat tissue is given by  $f=f(DH,DL)$  and  $g=g(DH,DL)$  where H,L is the high and low energy levels of X-ray. High resolution images  $DfHh(x,y)$  and  $DfLh(x,y)$  front detection location (x,y) are acquired when energy level H...

...  $DfPLh(x,y)$  are calculated in which  $DfPHh(x,y)=DfHh(x,y) - DfSHh(x,y)$ ,  $DfPLh(x,y)=DfLH(x,y) - DfSLh(x,y)$ . Dual energy decomposition is performed for primary and secondary X - ray images using fat and lean tissue images  $f=f(DH,DL)$  and  $g=g(DH,DL)$  microcalcification and soft tissue images  $c=c(DH,DL)$  and  $s=s(DH,DL)$  to obtain first order approximation material composition images  $c1(x,y)$ ,  $s1(x,y)$ ,  $f1...$

... Decomposition of single breast image into pure single component images is performed accurately, as dual energy calibration method is improved...

17/3,K/4 (Item 4 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
(c) 2004 Thomson Derwent. All rts. reserv.

012274552 \*\*Image available\*\*  
WPI Acc No: 1999-080658/199907  
XRPX Acc No: N99-058065

Bone density determination method using dual energy X - ray absorptometry - involves determining density of bone based on suitable pixels that corresponds to bone in high and low energy images and determined relationship between radiation transmissivity characteristics  
Patent Assignee: SCHICK TECHNOLOGIES INC (SCHI-N); SCHICK TECHNOLOGIES (SCHI-N)

Inventor: PLASS D B; SCHICK D B; SINGER J  
Number of Countries: 082 Number of Patents: 003  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5852647	A	19981222	US 97936571	A	19970924	199907 B
WO 9915077	A1	19990401	WO 98US19125	A	19980916	199920
AU 9893161	A	19990412	AU 9893161	A	19980916	199934

Priority Applications (No Type Date): US 97936571 A 19970924

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes  
US 5852647 A 13 G01N-023/06

WO 9915077 A1 E A61B-006/00  
Designated States (National): AL AM AT AU AZ BA BB BG BR BY CA CH CN CU  
CZ DE DK EE ES FI GB GE GH GM HR HU ID IL IS JP KE KG KP KR KZ LC LK LR  
LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM  
TR TT UA UG UZ VN YU ZW  
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR  
IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW  
AU 9893161 A A61B-006/00 Based on patent WO 9915077

Bone density determination method using dual energy X - ray  
absorptometry...

...involves determining density of bone based on suitable pixels that  
corresponds to bone in high and low energy images and determined  
relationship between radiation transmissivity characteristics

...Abstract (Basic): The method involves determining high and low energy  
radiation transmissivity characteristics of varying thickness of hard  
and soft tissue references from high and low energy images.  
Relationship between two determined high and low energy radiation  
transmissivity character is also determined...

...Density of bone is determined based on suitable pixels that  
corresponds to bone in high and low energy images and determined  
relationship between transmissivity characteristics. The pixel that  
corresponds to bone is selected from pixels that have transmissivity  
below threshold value which is equal to 80...

...ADVANTAGE - Uses cache memory for improving performance of soft tissue  
elimination process. Measures bone density as easily as taking blood  
pressure reading...

Title Terms: BONE ;

17/3,K/5 (Item 5 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
(c) 2004 Thomson Derwent. All rts. reserv.

012237868 \*\*Image available\*\*  
WPI Acc No: 1999-043976/199904  
Related WPI Acc No: 1993-235417; 1994-057605; 1994-074693; 1994-100675;  
1994-126758; 1994-134592; 1996-068129; 1996-087355; 1996-209048;  
1996-268275; 1996-268276; 1996-321484; 1997-011589; 1997-489129;  
1999-034441; 2000-378220; 2000-474802; 2001-181386; 2003-754502

XRPX Acc No: N99-032018

Dual energy X - ray detector for bone densitometer, airport  
baggage scanner - has high energy and low energy detectors that are  
arranged alternately in two rows vertical to scanning direction

Patent Assignee: LUNAR CORP (LUNA-N)

Inventor: GAUNTT D M; MAZESS R B

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5841833	A	19981124	US 91655011	A	19910213	199904 B
			US 92862096	A	19920402	
			US 92944626	A	19920914	
			US 9367651	A	19930526	
			US 9373264	A	19930607	
			WO 93US8515	A	19930910	
			US 94241270	A	19940510	
			US 95551685	A	19951101	

US 97814368 A 19970311

Priority Applications (No Type Date): US 97814368 A 19970311; US 91655011 A 19910213; US 92862096 A 19920402; US 92944626 A 19920914; US 9367651 A 19930526; US 9373264 A 19930607; WO 93US8515 A 19930910; US 94241270 A 19940510; US 95551685 A 19951101

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5841833	A		35	H05G-001/64	Cont of application US 91655011 Cont of application US 92862096 Div ex application US 92944626 CIP of application US 9367651 CIP of application US 9373264 CIP of application WO 93US8515 CIP of application US 94241270 CIP of application US 95551685 Div ex patent US 5228068 CIP of patent US 5291537 CIP of patent US 5306306 CIP of patent US 5509042

Dual energy X - ray detector for bone densitometer, airport baggage scanner...

...has high energy and low energy detectors that are arranged alternately in two rows vertical to scanning direction

...Abstract (Basic): The detector (13) includes high energy detector (37a) and low energy detector (37b) that are arranged alternately in two rows (300,302) vertical to the scanning direction. Each energy detector has an X-ray sensitive scintillator...

...The energy detectors generate electric signals proportional to the incident light and low energy photons, respectively. The energy detectors are moved by a scanning assembly along vertical direction to the row...

...USE - For analysis of morphology of human vertebra and other bones .

...Title Terms: BONE ;

17/3,K/6 (Item 6 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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012228334 \*\*Image available\*\*

WPI Acc No: 1999-034441/199903

Related WPI Acc No: 1993-235417; 1994-057605; 1994-074693; 1994-100675; 1994-126758; 1994-134592; 1996-068129; 1996-087355; 1996-209048; 1996-268275; 1996-268276; 1996-321484; 1997-011589; 1997-489129; 1999-043976; 2000-378220; 2000-474802; 2001-181386; 2003-754502

XRPX Acc No: N99-025785

Dual energy X - ray detector for use in medical system, industrial inspection system - includes interpolation circuit that receives and combines electrical signals output from X-ray sensing elements to produce interpolated value for virtual detecting element at identical times

Patent Assignee: LUNAR CORP (LUNA-N)

Inventor: GAUNTT D M; MAZESS R B

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5841832	A	19981124	US 91655011	A	19910213	199903 B
			US 92862096	A	19920402	
			US 92944626	A	19920914	
			US 92976797	A	19921116	
			US 9367651	A	19930526	
			US 9373264	A	19930607	
			US 94241270	A	19940510	
			US 94344328	A	19941123	
			US 95551685	A	19951101	
			US 97810875	A	19970305	
			US 97814368	A	19970311	
			US 97938992	A	19970926	

Priority Applications (No Type Date): US 97938992 A 19970926; US 91655011 A 19910213; US 92862096 A 19920402; US 92944626 A 19920914; US 92976797 A 19921116; US 9367651 A 19930526; US 9373264 A 19930607; US 94241270 A 19940510; US 94344328 A 19941123; US 95551685 A 19951101; US 97810875 A 19970305; US 97814368 A 19970311

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5841832	A	35	A61B-006/00		Cont of application US 91655011
					Cont of application US 92862096
					Div ex application US 92944626
					CIP of application US 92976797
					CIP of application US 9367651
					CIP of application US 9373264
					CIP of application US 94241270
					Div ex application US 94344328
					Cont of application US 95551685
					CIP of application US 97810875
					CIP of application US 97814368
					CIP of patent US 5228068
					CIP of patent US 5287546
					Cont of patent US 5287546
					CIP of patent US 5291537
					CIP of patent US 5509042
					CIP of patent US 5745544

Dual energy X - ray detector for use in medical system, industrial inspection system...

...Abstract (Basic): The detector (13) includes solid state low energy X-ray sensing elements for detecting incident low energy X-ray, along radiation axis over a predefined detector area. Each solid state low energy X-ray sensing element produces an electronic signal proportional to the low energy X-rays. Several solid state high energy sensing elements detect incident high energy X-rays along the radiation axis over the predetermined detector area and...

...in separate side by side rows (300,302) and columns such that the elements are arranged across the radiation axis. Each of the high and low energy sensing element includes a sensitive scintillator and a photodiode. An interpolation circuit receives electrical signals from the two sets of the sensing elements and combines these electrical signals, to produce an interpolated value for a virtual detecting element located at position where the low and high energy sensing elements are arranged, at identical time...

...USE - For use in bone -densitometer, airport baggage scanner...

17/3,K/7 (Item 7 from file: 350)  
 DIALOG(R)File 350:Derwent WPIX  
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010590843 \*\*Image available\*\*  
 WPI Acc No: 1996-087796/199609  
 XRAM Acc No: C96-028442  
 XRPX Acc No: N96-073604

Single sheet photo-stimulable phosphor screen for dual energy  
 recording of X - rays - has 2 different phosphor-contg. layers  
 Patent Assignee: AGFA-GEVAERT NV (GEVA ); AGFA-GEVAERT AG (GEVA )  
 Inventor: LEBLANS P

Number of Countries: 018 Number of Patents: 010

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9601479	A1	19960118	WO 95EP1077	A	19950321	199609	B
EP 769192	A1	19970423	EP 95914292	A	19950321	199721	
			WO 95EP1077	A	19950321		
EP 769192	B1	19980603	EP 95914292	A	19950321	199826	
			WO 95EP1077	A	19950321		
DE 69502832	E	19980709	DE 602832	A	19950321	199833	
			EP 95914292	A	19950321		
			WO 95EP1077	A	19950321		
US 5886354	A	19990323	WO 95EP1077	A	19950321	199919	
			US 96765725	A	19961230		
JP 2000505886	W	20000516	WO 95EP1077	A	19950321	200032	
			JP 96503636	A	19950321		
US 6180949	B1	20010130	US 96765725	A	19961230	200108	
			US 9846712	A	19980324		
JP 3220465	B2	20011022	WO 95EP1077	A	19950321	200169	
			JP 96503636	A	19950321		
JP 2002022897	A	20020123	JP 96503636	A	19950321	200211	
			JP 2001166651	A	19950321		
JP 3390751	B2	20030331	JP 96503636	A	19950321	200325	
			JP 2001166651	A	19950321		

Priority Applications (No Type Date): EP 94201931 A 19940705

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9601479	A1	E	23	G21K-004/00	
					Designated States (National): JP US
					Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE
EP 769192	A1	E		G21K-004/00	Based on patent WO 9601479
					Designated States (Regional): DE FR GB
EP 769192	B1	E		G21K-004/00	Based on patent WO 9601479
					Designated States (Regional): DE FR GB
DE 69502832	E			G21K-004/00	Based on patent EP 769192
					Based on patent WO 9601479
US 5886354	A			G21K-004/00	Based on patent WO 9601479
JP 2000505886	W		23	G21K-004/00	Based on patent WO 9601479
US 6180949	B1			G01T-001/105	Cont of application US 96765725
					Cont of patent US 5886354
JP 3220465	B2		9	G21K-004/00	Previous Publ. patent JP 200005886
					Based on patent WO 9601479
JP 2002022897	A		9	G21K-004/00	Div ex application JP 96503636
JP 3390751	B2		9	G21K-004/00	Div ex application JP 96503636
					Previous Publ. patent JP 2002022897

**Single sheet photo-stimulable phosphor screen for dual energy recording of X - rays -**

...Abstract (Basic): Also claimed is an X-ray recovery process for imaging soft **tissue** and **bone** .

...USE - The phosphor screens are used for **dual energy** recording of X - ray patterns contg. X - rays of different energy levels, e.g. the phosphor screen may have a transparent self-supporting layer provided in each surface with parallel grooves filled with...

...ADVANTAGE - The single sheet phosphor screen can be used in recording high and **low energy** level patterns from a single X-ray exposure, thus preventing mis-registration. The exposed phosphor screen can be read out by photo-stimulation and the

17/3,K/8 (Item 8 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
(c) 2004 Thomson Derwent. All rts. reserv.

007515142 \*\*Image available\*\*  
WPI Acc No: 1988-149075/198822  
XRPX Acc No: N88-113855

Imaging **appts. esp. for dual energy digital radiography - transforms filtered electronic pixel valves into composite image, and selectively alters filter function**

Patent Assignee: PICKER INT INC (PXRM ); PICKER CORP (PXRM )

Inventor: LAURO K L; SONES R A

Number of Countries: 006 Number of Patents: 005

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 269302	A	19880601	EP 87309897	A	19871109	198822 B
JP 63147437	A	19880620	JP 87298846	A	19871126	198830
US 4792900	A	19881220	US 86935282	A	19861126	198902
EP 269302	B1	19921230	EP 87309897	A	19871109	199301
DE 3783337	G	19930211	DE 3783337	A	19871109	199307
			EP 87309897	A	19871109	

Priority Applications (No Type Date): US 86935282 A 19861126

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 269302	A	E	13		

Designated States (Regional): DE FR GB NL

EP 269302 B1 E 15 G06F-015/68

Designated States (Regional): DE FR GB NL

DE 3783337 G G06F-015/68 Based on patent EP 269302

Imaging **appts. esp. for dual energy digital radiography...**

...Abstract (Equivalent): The radiographic scanner (A) generates a high energy image representation which is stored in an image matrix (V) and a **low energy** image representation which is stored in a **low energy** image memory (U). A pair of filter functions selecting circuits (C) select a soft **tissue** specific filter function and or **bone** specific filter function, respectively. The soft **tissue** filter selecting circuit selects and adjusts the soft **tissue** filter function in accordance with the pixel value of the **low energy** image representation for each corresponding pair of pixel values. Convolvers

(44,46) convolve pixel values from the high and low energy image representations with the selected and adjusted filter functions...

...A soft tissue transform function (48) transforms the filtered high and low energy image representations into a soft tissue or other material specific image representation (42). The other filter selecting and adjusting circuit selects and adjusts the bone specific filter functions which are convolved with the high and low energy image representations by convolvers (54,56). A bone specific transform function (58) transforms the filtered high and low energy image representations into a bone basis image...

17/3,K/9 (Item 9 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
(c) 2004 Thomson Derwent. All rts. reserv.

004512048

WPI Acc No: 1986-015392/198603

XRAM Acc No: C86-006259

XRPX Acc No: N86-011304

Detector for two X-ray energies for medical examination - has detector cathode with two strips receiving filtered and unfiltered radiation respectively

Patent Assignee: OPTISCHE IND DE OUDE DELFT NV (OPTS )

Inventor: MULDER H

Number of Countries: 008 Number of Patents: 007

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 168090	A	19860115	EP 85200964	A	19850618	198603 B
NL 8401946	A	19860116	NL 841946	A	19840619	198607
JP 61017970	A	19860125	JP 85132075	A	19850619	198610
US 4821306	A	19890411	US 85744792	A	19850613	198917
IL 75538	A	19891031				199004
EP 168090	B	19900509				199019
DE 3577630	G	19900613				199025

Priority Applications (No Type Date): NL 841946 A 19840619

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

EP 168090 A E 18

Designated States (Regional): DE FR GB IT NL

EP 168090 B

Designated States (Regional): DE FR GB IT NL

...Abstract (Basic): opposite the cathode. A slit diaphragm (2) and a filter (4) are mounted in the path between the source and detector, the filter blocking relatively low energy x-ray radiation in a portion of the beam...

...ADVANTAGE - Dual energy image processing technique implemented without switching x-ray source anode voltage...

...Abstract (Equivalent): filter intercepts a portion of the X-ray beam emitted by the source over the entire length of the slit-shaped aperture and blocks relatively low energy X-radiation in said beam portion, and that the cathode is provided with an X-ray detection layer consisting of two essentially parallel strips extending...

...Abstract (Equivalent): a slit-diaphragm forming a planar X-ray beam, (c) a filter, located near the slit diaphragm and (d) means for providing movement between the body to be radiographed and the slit diaphragm

and elongated X-ray detector tube. The filter can be formed of copper or lead...

...USE/ADVANTAGE - The system can be employed to detect two **X - ray** energies. The system permits the application of so-called **dual energy image** processing techniques to slit-radiography without the need to switch the anode voltage of the X-ray source...

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18/3,K/1 (Item 1 from file: 347)  
DIALOG(R)File 347:JAPIO  
(c) 2004 JPO & JAPIO. All rts. reserv.

07457241 \*\*Image available\*\*  
SYSTEM AND METHOD FOR SYNCHRONIZATION OF THE ACQUISITION OF IMAGES WITH  
THE CARDIAC CYCLE FOR DUAL ENERGY IMAGING

PUB. NO.: 2002-325756 [JP 2002325756 A]  
PUBLISHED: November 12, 2002 (20021112)  
INVENTOR(s): NICOLAS FRANCOIS SERGE  
RADER AMBER ELAINE  
BARBER MICHAEL JOHN  
APPLICANT(s): GE MEDICAL SYSTEMS GLOBAL TECHNOLOGY CO LLC  
APPL. NO.: 2001-399811 [JP 2001399811]  
FILED: December 28, 2001 (20011228)  
PRIORITY: 00 752283 [US 2000752283], US (United States of America),  
December 29, 2000 (20001229)

SYSTEM AND METHOD FOR SYNCHRONIZATION OF THE ACQUISITION OF IMAGES WITH  
THE CARDIAC CYCLE FOR DUAL ENERGY IMAGING

#### ABSTRACT

PROBLEM TO BE SOLVED: To provide a system and a method for improving the  
image quality of an X - ray image of a patient in a dual energy X  
- ray imaging system.

SOLUTION: A cardiac cycle monitor 140 monitors the cardiac cycle of a  
patient 110 and detects a cardiac trigger. Once the cardiac trigger has  
been detected, an X-ray emitter 120 irradiates the patient 110 with high  
energy X-ray and low energy X-ray and an X-ray detector 130 forms an  
image by detecting emissions. The X-ray detector performs a large number of  
scrubs. Then the X-ray emitter 120 acquires at least one offset image. The  
offset and the X-ray images are then combined to form X - ray images  
that may then be employed for dual energy X - ray processing.

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18/3,K/2 (Item 1 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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014073405 \*\*Image available\*\*  
WPI Acc No: 2001-557618/200162  
XRAM Acc No: C01-165805  
XRPX Acc No: N01-414383

Photon detector unit for radiation therapy and imaging, comprises stages  
of converter layers and amplifiers

Patent Assignee: BRAHME A (BRAH-I); DANIELSSON M (DANI-I)

Inventor: BRAHME A; DANIELSSON M

Number of Countries: 090 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200159478	A1	20010816	WO 2000SE274	A	20000210	200162 B
AU 200029554	A	20010820	AU 200029554	A	20000210	200175
			WO 2000SE274	A	20000210	
US 6429578	B1	20020806	US 99236596	A	19990126	200259 N
US 20020149305	A1	20021017	US 99236596	A	19990126	200275 N
			US 2002166197	A	20020611	

Priority Applications (No Type Date): WO 2000SE274 A 20000210; US 99236596  
A 19990126; US 2002166197 A 20020611

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200159478 A1 E 37 G01T-001/185

Designated States (National): AE AL AM AT AU AZ BA BB BG BR BY CA CH CN  
CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP  
KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE  
SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR  
IE IT KE LS LU MC MW NL OA PT SD SE SL SZ TZ UG ZW

AU 200029554 A G01T-001/185 Based on patent WO 200159478

US 6429578 B1 H01J-043/00

US 20020149305 A1 H01J-043/00 Div ex application US 99236596

Div ex patent US 6429578

Abstract (Basic):

... is also energy sensitive. This optimizes the contrast for a  
given task and determines the elemental composition of an object. The  
energy sensitivity also enables **dual - energy imaging**. The detector  
can also weight information from **X - rays** of different energies...

Technology Focus:

... Preferred Components: A housing encloses the converters and  
amplifiers. It comprises a top cover that is transparent to **low  
energy** X-ray photons. A gas is provided inside the housing. It  
constitutes the amplifier and the converter. The amplifier comprises a  
composite dipole layered structure...

18/3,K/3 (Item 2 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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012377217 \*\*Image available\*\*

WPI Acc No: 1999-183324/199916

Related WPI Acc No: 2002-271251

XRAM Acc No: C99-053621

XRFX Acc No: N99-134657

**X-ray detection and imaging of materials**

Patent Assignee: UNIV NOTTINGHAM TRENT (UYNO-N)

Inventor: EVANS J P O; ROBINSON M

Number of Countries: 001 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
GB 2329817	A	19990331	GB 9821037	A	19980928	199916 B
GB 2329817	B	20010829	GB 9821037	A	19980928	200150

Priority Applications (No Type Date): GB 9720658 A 19970929

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

GB 2329817 A 28 G01N-023/04

GB 2329817 B G01N-023/04

...Abstract (Basic): identification if polycrystalline material in that  
object comprises moving the object through two or more diverging x-ray  
beams and generating a stereoscopic pair of **images** from the output of  
at least two parallel **dual energy** linear detectors associated with  
the beams. A scatter detector is positioned half way in between the or  
each pair of X-ray curtain beams so...

...in which as many scatter detectors as dual energy detectors are positioned so that a stereoscopic pair can be derived from each of the high **energy** and low **energy** detectors in the dual energy pair and also a stereoscopic pair can be derived from the scatter detectors; (b) a method in which scatter detectors...

18/3,K/4 (Item 3 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
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012008547

WPI Acc No: 1998-425457/199836

XRAM Acc No: C98-127980

XRPX Acc No: N98-332180

**X-Ray detector - comprises two image sensor matrices and a scintillator layer**

Patent Assignee: ANONYMOUS (ANON )

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
RD 411068	A	19980710	RD 98411068	A	19980620	199836 B

Priority Applications (No Type Date): RD 98411068 A 19980620

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
RD 411068	A		G21K-000/00	

...Abstract (Basic): sensor matrices and a scintillator layer. The scintillator layer is positioned between the sensor matrices. The scintillator layer, e.g. a doped CsI layer generates low - **energy** radiation from the incident X-rays. For example X-rays are converted into green light for which the sensor matrices are sensitive. The sensor matrices form electrical signals from the incident low - **energy** radiation. The arrangement of a scintillator layer placed between two image sensor matrices has the following advantages. The spatial resolution of the X-ray detector is increased since the low - **energy** radiation has a relatively short path to one of the image sensor matrices. The sensitivity of the X-ray detector is also increased since substantially all low - **energy** radiation is detected by one of the image sensor matrices, irrespective of the direction into which the low - **energy** radiation is emitted. Further, the X-ray detector allows a very short read-out time since both image sensor matrices can be read-out simultaneously. Furthermore, the X - ray detector is suitable to perform dual **energy** detection. The higher the X - ray energy, the further the X - rays penetrate into the scintillator layer. Consequently, the ratio of the image signals from the respective image sensor matrices represents the ratio of the absorption of high-energy X-rays to the absorption of low - **energy** X-rays...

18/3,K/5 (Item 4 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
(c) 2004 Thomson Derwent. All rts. reserv.

011843915 \*\*Image available\*\*

WPI Acc No: 1998-260825/199823

XRPX Acc No: N98-205653

**X-ray imaging system - has tube providing raster pattern beam and single point detector apparatus for detecting at least two different energy**

**level x-rays**

Patent Assignee: SOUTHEASTERN UNIVERSITIES RES ASSOC (SEUY-N)

Inventor: MAJEWSKI S; WOJCIK R F

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5742660	A	19980421	US 97781722	A	19970110	199823 B

Priority Applications (No Type Date): US 97781722 A 19970110

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5742660	A		7	H05G-001/64	

...Abstract (Basic): The detector apparatus may have a **low x-ray energy** sensitive single point detector, with low stopping power for x-rays, and a high x-ray energy sensitive single point detector, with large stopping power...

...ADVANTAGE - Uses relatively large size inexpensive energy sensitive detectors to produce high resolution **dual energy laminographic images**. Allows **images** to be obtained faster than with mechanical scanning and simplicity of the system, which allows the use of cheaper electronics, reduces cost compared with conventional...

18/3,K/6 (Item 5 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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008098986 \*\*Image available\*\*

WPI Acc No: 1989-364098/198949

XRPX Acc No: N89-276887

**Digital radiographic appts. for medical use - uses dual energy scanned detector array and stored linear interpolations of image pixels**

Patent Assignee: PICKER INT INC (PXRM )

Inventor: LAURO K L; SONES R A

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 4872188	A	19891003	US 87126165	A	19871127	198949 B

Priority Applications (No Type Date): US 87126165 A 19871127

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 4872188	A		10		

... **uses dual energy scanned detector array and stored linear interpolations of image pixels**

...Abstract (Basic): ADVANTAGE - Corrects basis images for high and **low energy** photodiode pair misalignment...

18/3,K/7 (Item 6 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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007317970

WPI Acc No: 1987-314977/198745

XRPX Acc No: N87-235736

**Ionisation chamber diagnostic X-ray imaging system - uses two kinestatic charge detectors arranged to receive different average radiation energies impinging on patient**

Patent Assignee: GENERAL ELECTRIC CO (GENE )

Inventor: GRANFORS P R; KEYES G S; MCDANIEL D L

Number of Countries: 006 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 244766	A	19871111	EP 87106291	A	19870430	198745 B
US 4780897	A	19881025	US 86860329	A	19860506	198845
IL 82129	A	19910131				199111

Priority Applications (No Type Date): US 86860329 A 19860506

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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EP 244766	A	E	30		
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Designated States (Regional): DE FR GB NL

US 4780897	A	11			
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...Abstract (Basic): A first kinestatic charge detector (38) is arranged to receive X-ray radiation of relatively **low average energy**, and a second kinestatic charge detector (40) is arranged to receive, from a patient (18), X-ray radiation of relatively high average energy. The X

...in average beam energy. A second collimator (52) in the region of the detector prevents, or reduces, back scattering of radiation to the detectors. An **imaging** system processes data from the detector to produce a **dual energy** difference **image**.

...Abstract (Equivalent): The kinestatic charge detection system provides **dual energy** radiation **images** of a patient using two kinestatic charge detectors commonly connected to an apparatus for rotating the detectors about a radiation source at a predetermined velocity...

...magnitude but opposite in direction to the velocity of rotation of the detectors. The radiation from the X-ray source is modulated such that relatively **low average energy** radiation impinging on the patient is received by the first detector and relatively high average energy radiation impinging on the patient is received by the...

?

22/3,K/1 (Item 1 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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015769760 \*\*Image available\*\*  
WPI Acc No: 2003-831962/200377  
XRPX Acc No: N03-664917

Multiple disease states analysis method using flat panel detector,  
involves displaying generated image and calculated bone mineral density  
to diagnose disease states constituting lung cancer and osteopenia  
Patent Assignee: AVINASH G (AVIN-I); EBERHARD J W (EBER-I); THOMAS C  
(THOM-I); UNGER C D (UNGE-I); ZHAO J (ZHAO-I)

Inventor: AVINASH G; EBERHARD J W; THOMAS C; UNGER C D; ZHAO J  
Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20030194120	A1	20031016	US 200263338	A	20020412	200377 B

Priority Applications (No Type Date): US 200263338 A 20020412

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20030194120	A1		14	G06K-009/00	

Abstract (Basic):

... The method involves generating pair of images based on signal  
output by the flat panel detector (102) which receives X - rays  
passing through the patient's body using dual energy X - ray  
absorptiometry, to diagnose disease states constituting lung cancer,  
breast cancer, pneumonia, tuberculosis, bone fracture and osteopenia.  
The generated image and calculated bone mineral density are...

International Patent Class (Main): G06K-009/00

22/3,K/2 (Item 2 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
(c) 2004 Thomson Derwent. All rts. reserv.

014262622 \*\*Image available\*\*  
WPI Acc No: 2002-083320/200211  
XRAM Acc No: C02-025390  
XRPX Acc No: N02-062000

Property assessment of meat for measuring tenderness and chemical lean of  
meat comprises scanning the meat using dual energy X-ray absorption  
scanner to produce images/values representative of X-ray intensities  
Patent Assignee: INST GEOLOGICAL & NUCLEAR SCI LTD (GEOL-N); BARTLE C M  
(BART-I)

Inventor: BARTLE C M

Number of Countries: 097 Number of Patents: 008

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200196844	A1	20011220	WO 2001NZ108	A	20010611	200211 B
AU 200167945	A	20011224	AU 200167945	A	20010611	200227
EP 1311834	A1	20030521	EP 2001945834	A	20010611	200334
			WO 2001NZ108	A	20010611	
US 20030091144	A1	20030515	WO 2001NZ108	A	20010611	200335
			US 2002316751	A	20021211	
NZ 502033	A	20030530	NZ 502033	A	20000611	200341
KR 2003022815	A	20030317	KR 2002716840	A	20021210	200350
BR 200111572	A	20030701	BR 200111572	A	20010611	200356

US 6678396 B2 20040113 WO 2001NZ108 A 20010611 200405  
 WO 2002316751 A 20021211

Priority Applications (No Type Date): NZ 502033 A 20000611

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200196844 A1 E 37 G01N-023/087

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA  
 CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN  
 IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ  
 PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW  
 Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR  
 IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

AU 200167945 A G01N-023/087 Based on patent WO 200196844

EP 1311834 A1 E G01N-023/087 Based on patent WO 200196844

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT  
 LI LT LU LV MC MK NL PT RO SE SI TR

US 20030091144 A1 G01N-023/06 Cont of application WO 2001NZ108

NZ 502033 A G01N-023/087 Div in patent NZ 523111

KR 2003022815 A G01N-023/087

BR 200111572 A G01N-023/087 Based on patent WO 200196844

US 6678396 B2 G06K-009/00 Cont of application WO 2001NZ108

Abstract (Basic):

... A method for assessing a property/properties of meat involves  
 scanning the meat using a dual energy X-ray absorption scanner to  
 produce two **images** or arrays of values representative of the  
 intensities of the X-rays at two energy levels. The images or arrays of  
 values are processed to...

?